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CYSTITIS.*

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A man sleeps in the open air—a sudden storm comes up—he gets wet and thoroly chilled—develops acute pneumonia; his friends say the "chill" was the cause of the pneumonia; a young physician says no—the pneumococcus was the cause; while an observing human nuisance remarks that such pneumococci exists in the normal mouth! Each and every one of these remarks is correct. Pneumococci exist in the normal mouth, they are essential for the development of pneumonia, but unless they are sown on favorable soil they flourish no more than did the good seed which fell on rough and stony ground. When the chill has acted the part of the husbandman and prepared the soil the present pneumococci "rejoice" and pneumonia results. So it is with cystitis. The disease is infective, but the mere presence of the infective agent is not necessarily followed by inflammation—preparation of the soil is necessary. Of course, if the bacteria are exceedingly virulent they may prepare the soil for themselves. This, however, is rare. Almost any of the pyogenic organisms may and do produce cystitis, but colon bacillus is pre-eminent in that role. Even in post-gonorrheal cystitis this bacillus is usually the active agent.

How do bacteria gain entrance to the bladder, and how is the soil prepared for their growth?

1. Of course, the commonest mode of entrance is on instruments; e. g., catheters, but even the use of instruments is often unjustly blamed as the means of infection, when, in fact, they may not have introduced a single bacterium, but have, by trauma, prepared the soil for already present germs.

2. Practically all the bacteria which produce cystitis are found normally near the urethra, both in man and woman, and many of them live in the healthy urethra. It is rare, however, for them to pass up the urethra to the bladder without the aid of the surgeon. The colon bacillus itself is rarely found in the urethra. Spontaneous infection of the bladder per urethram is more common in the female for obvious reasons.

3. Colon bacilli absorbed into the blood from a diseased intestine are excreted by the kidneys and so may infect an injured bladder. This source of infection explains some cases of inflammation following enlargement of the prostate.

4. The mucosa of the rectum is injured by operation, accident or disease. Thru the solution of continuity bacteria penetrate and grow towards and into the bladder.

Lest a due notion of perspective has been obscured by the foregoing remarks, it may be well to repeat that the principal route by which infection reaches the bladder is the urethral, and that in the male at least the transporting agent is usually a catheter or sound.

How is the soil prepared for bacterial growth?

That preparation of the soil is necessary is evident because in "bacteriuria" the urine swarms with organisms, and yet cystitis does not necessarily supervene, and because bacteria are often eliminated thru the kidneys, yet if the urinary passages are uninjured no harm results. In experimental work colon bacilli have been introduced into the circulation and excreted in the urine, but unless the bladder was properly prepared for their reception no cystitis developt. Injury to the bladder is the means by which the soil is prepared. Rough instrumentation (e. g., in lithotrity) the traumata inflicted by a calculus, etc.; irritation and distension from retention of urine; irritation and congestion caused by the exhibition of cantharides, or in the woman during menstruation or pregnancy—all these traumata or changes in circumstances are means for the efficient preparation of the soil and, bacteria being present or introduced, cystitis results. Let us trace tthe course of events in one or two instances:

A man has an enlarged prostate, there is a little residual urine perhaps, but no symptoms except slightly increast frequency of micturition. He dissipates a little on one evening—takes several drinks—mayhap indulges moderately in venery and in the morning he repents with a distended bladder which he cannot evacuate. The liquor and sexual excitement have caused congestion and swelling in the prostatic urethra—hence the retention. A sterilized catheter is passt and carries with it, from the glans or the anterior urethra, bacteria. Often even in the most careful hands the catheter does mechanical injury, and aids in preparing the soil, but the real preparation is the congestion and retention. Cystitis results. The patient is kept at rest, at an equable temperature, the bladder is emptied at proper intervals by the catheter, the renal flow is increast by the exhibition of unirritating diluents and the patient recovers without any antiseptic treatment. The treatment has been directed against the soil and has succeeded.

Again, the prostatic has had his bladder overdistended for days or even weeks (as in a case sent to me for the removal of an abdominal tumor), but cystitis has not developt; a catheter is passt and the bladder is completely emptied; cystitis develops. In this case the complete evacuation of the bladder removes the hydrostatic pressure to which its walls have become accustomed; congestion, even hemorrhage, makes its appearance; the soil is ready—the bacteria have come in with the catheter and cystitis supervenes.

A man has gonorrhea and it is easy to understand how, when the disease is acute (and the flourishing gonococci have reduced any other bacteria which may have been in the urethra to a condition of innocuous desuetude), the "causus morbi" may reach the bladder and set up a gonococcal cystitis. It is less easy to understand why, with ignorant and active treatment, this complication is so uncommon. Most commonly cystitis complicates gonorrhea during the third or fourth week of the disease or later. By this time the acuteness of the gonorrhea is passt, the agents of secondary infection can flourish in the tissues weakened by the gonorrhea, and pass, by extension (or are carried by injections, etc.), into the deep urethra and bladder, where they find a congenial domicile and flourish. This explains the fact that gonococci are rarely found in the cystitic bladder.

The pathological anatomy of acute cystitis is that of any acute catarrh of a mucous membrane.

In chronic cystitis leukoplakia is common. This condition simply means that from irritation the normal epithelium has become cornified or skin-like in the same manner as the prolapst rectal mucosa often changes. The cornification of the bladder epithelium is believed to lower its resistance to the noxious influence which causes cancer. It would be a waste of time to describe the various anatomical changes seen in chronic cystitis, since they correspond so closely to those of other catarrhal inflammations.

When stricture is the predisposing cause of chronic cystitis, the slowly increasing obstruction to the flow of urine calls for a proportionate increase in propulsive power. This increast propulsive power is obtained by increasing the vesical muscles. Hence in the chronic cystitis of stricture the bladder is usually small and thick-walled. In prostatics, on the other hand, there is, as a rule, no such muscular hypertrophy. There has been no successful training of the vesical muscles to force the urine past an obstruction, and consequently no such muscular hypertrophy. The urine the prostatic passes voluntarily is an overflow—there is always residual urine to greater or less extent. The inflammation is kept up, spreads from the mucosa to submucosa and musculosa; this causes thickening of the submucosa and degeneration of the musculosa. The same changes take place in stricture when the inflammation spreads to the musculosa.

In inflammation of the pleura or peritoneum one finds that an exudation of coagulable lymph is thrown out on the surface and forms a network of fibrils in the meshes of which are entangled numerous corpuscular elements. The exudate forms a membrane sticking to, but never a part of, the surface of the pleura or peritoneum. To such a membrane spread on the fauces the name of "croupous" used to be given. In cystitis such "croupous" membrane may be spread on the inner surface of the bladder and may come away in shreds or masses.

As a result of severe inflammation one may have sloughing of a greater or less depth of the surface, of the fauces, for example. The result is a so-called "false membrane," which, unlike the "croupous" membrane, is or has been part and parcel of the throat-surface. It is a slough. To this used to be given the name "diphtheritic membrane." Such sloughs of part or all the vesical lining have been seen and described.

The symptomatology of cystitis is so well known that it may be dismisst in a few words. A word of warning is, however, necessary. It is too commonly believed that cystitis is not present if the urine is not ammoniacal. If pus is present in the urine

*Read before Jackson County Medical Society.

and this pus comes from the bladder, there is cystitis. The bacteria most to blame for cystitis flourish in an acid medium—they have too little power of causing fermentation to make the urine ammoniacal during the time it remains in the bladder. Legnau remarks: "The urine is acid in the majority of cases" * * * "Ammoniuria, when present, is an accidental phenomena consequent to the infection, and is without diagnostic or prognostic value."

TREATMENT.

Any attempt at a thoro or even approximately thoro dissertation of cystitis would be entirely out of place in a paper such as this—its proper consideration would take a volume! All that will be attempted here is the formulation of a few therapeutic principles.

I. PROPHYLACTIC TREATMENT.—Phophylactic treatment must be such as to prevent the ingress of the active agents which produce the disease and to prevent the preparation of the soil for their growth. As catheterism is the most common method of introducing bacteria one must use thoro antiseptic or aseptic means when carrying out the necessary manipulations. It is a marvel that the use of the catheter does not more commonly lead to dire results—the only explanation of its frequent failure to do so lies in the state of the soil. One should not trust, however, to the soil being unfavorable for bacterial growth; one must avoid introducing the seed. A lighted match or cigar stump dropt on the carpet will almost certainly go out without starting a blaze, but the careful householder does not put his trust in that fact. The careful practitioner must sterilize his instruments and must clean the glans and anterior urethra before introducing them.

To prevent the ingress of bacteria by other routes the main reliance must be placed on measures calculated to prevent the accumulation of bacteria in the intestines and their passage thru the gut-walls. The soil must be rendered or kept unsuitable for bacterial growth. To this end it is necessary to dilate strictures, remove irritants from the bladder, avoid rough instrumentation, prevent anything liable to induce pelvic and especially vesical congestion; and, particularly in prostatics, to drain or empty the bladder regularly. A hugely distended bladder must not be evacuated completely at one sitting for reasons already given.

II. ACTIVE TREATMENT.—Active treatment may be general or local. In many cases general treatment combined, especially in prostatics, with regular evacuation of the residual urine is all that is necessary.

The principles on which general treatment should be based are:

(a) Regulation of the bowels.
(b) Regulation of the urine.
(c) Regulation of the skin.

The writer usually endeavors to obtain a free flow of bland, unirritating urine by the exhibition of large quantities of linseed or slippery-elm tea with or without the addition of full doses of boric acid. There are, of course, a thousand and one means of doing this, but the above method has always been satisfactory, the relief given being often remarkable and rapid.

Regulation of the skin is of much importance, as surface-chilling is an enormous factor in the diminution of the resisting power of the body to noxious influence, while much vesical irritation may be avoided if a sufficiency of toxins are eliminated thru the skin instead of thru the kidneys. The patient should certainly be confined to bed in a warm, well ventillated room. He should preferably be between blankets (not sheets) and frequently indulge in warm baths. Such simple precautions are of great practical value.

III. LOCAL TREATMENT.—Local treatment is directed, first, against the active cause of the disease, viz: the bacteria; second, to the soil in an endeavor to assist the soil in its fight against evil.

Any antiseptic introduced in such strength and quantity as to give any chance of rapidly killing the bacteria would of course so injure the tissues that a fresh infection (sure to take place) would have a free field and the last state of the patient would be worse than the first. All that we can hope from measures directed against the bacteria themselves is to wash many of them away mechanically and apply mild antiseptics which may inhibit the activity of those left, without injuring the tissues. When the bladder is not too contracted and irritable copious douches of warm solutions (e. g., of permanganate of potash or Thiersch's mixture, or of some of the silver salts) are of great value. Such douches have also a good effect on the mucosa and assist it in its fight. When the bladder is small, is irritated, it cannot endure irrigation. Here the instillation of small doses of strong solutions of such drugs as nitrate of silver is the treatment par excellence. Most of us have seen cases of laryngitis where the patient is found sitting up in bed, gasping for breath, his eyes like to pop out of his head, the whole picture giving the impression of a man anxious to live and about to be snufft out. Pass a brush soakt in nitrate of silver solution into such a larynx, the larynx spasmodically closes on the brush, remove the brush, the patient seems to choke for a few seconds, and then there is great relief—the breathing becomes comparatively easy, the look of despair vanishes. The relief afforded by the installation of nitrate of silver to the neck of the bladder in suitable cases gives very similar results, and the patient blesses the attendant.

The above consideration of the principles of treatment of cystitis is extremely sketchy and insufficient. A long paper is a weariness to the flesh of the author and more particularly of the hearer. It is written that "the merciful man is merciful unto his beast;" how much more then ought an essayist to be merciful to his audience! This essayist will try to be merciful and having said his say: stops.

WOMAN'S HOSPITAL REPORTS.

BY EMORY LANPHEAR, M. D., PH. D., ST. LOUIS, MO.
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Some three years ago I had to report a death from intestinal obstruction following vaginal hysterectomy (for cancer), at Mercy Hospital, Dubuque, Iowa. I now have to record a second accident of the same kind.

DEATH FROM INTESTINAL OBSTRUCTION FOLLOWING VAGINAL HYSTERECTOMY.

Mrs. P. P. C——, of Odin, Ill., a patient of Dr. J. J. Fyke, was admitted to the Woman's Hospital July 21, 1901, suffering from cancer of the uterus. She was 39 years of age, mother of six children, (youngest three years old), of previous good health, tho frail and much weakened by numerous uterine hemorrhages continuing for nearly four months.

July 23, with the assistance of Drs. R. H. Finley and Geo. Howard Thompson, I removed the uterus, tubes and ovaries thru the vagina. No complications were met. There was such an unusual redundancy of pelvic peritoneum that I decided to sew it up with fine catgut instead of merely packing the pelvis with gauze, as is my usual method of procedure. Accordingly the suture was introduced so as to shut off the peritoneal space, except at one small point near the middle, where a hole about one inch in diameter was left for drainage purposes. Thru this opening a wisp of gauze was past and the vagina carefully packt.

There was much shock, and great restlessness—so great that half-grain doses of phosphate of codeine had to be given to preserve even a semblance of quietude. Vomiting was not unusually severe.

She did nicely until the evening of July 27, when the gauze was removed on account of saturation with urine, and contamination with feces from a very free bowel movement. The vagina was lightly filled with bichloride gauze, without the introduction of a finger up to the site of operation—a fatal mistake, as a loop of ileum followed the gauze into the vagina.

The night was past in comfort, and in the early part of the 28th she seemed doing well; but about 2 p. m. she began to complain of pain in the bowels, and later vomiting occurred. At 9 p. m. I became so uneasy about her condition that Dr. Finley was called with the view of opening up the wound to liberate incarcerated intestine. But as an enema brought away a large quantity of fecal matter without trouble, and the vomiting ceast a false sense of security led us to postpone action.

She past a quiet night, sleeping well; and on the morning of the 29th appeared to be past danger. At about 10 o'clock vomiting recurred, the belly became hard and the countenance assumed a pincht expression. There was no longer room for doubt. She was taken to the operating-room, and the vagina explored. A loop of small intestine filled the small opening left for drainage, and was firmly held there by the adhesions. The gut was liberated and the pelvis washt out; but the patient never rallied, and died about 6 p. m.

The lessons I learn from this are (1) to carefully pack the wound without attempt at sewing peritoneal surfaces together; (2) to always examine the wound after withdrawal of the gauze-pack; (3) to never postpone exploration when symptoms point even faintly to obstruction; and (4) to not be misled by free bowel movement secured by enema.

VAGINAL HYSTERECTOMY FOR BLEEDING FIBROID WITH OLD ECTOPIC GESTATION.

Mrs. V. S——, age 38, was sent to the Woman's Hospital July 22, by Dr. G. M. Phillips. She first menstruated at 16, without trouble, was married at 23, had a child at 28, and at 33 became pregnant a second time. This proved (according to her former

medical attendant), to be a tubal gestation, rupture occurring at the third month. She flowed continuously for two months, and then resumed normal menstruation. About eight months ago she began to flow too freely at her menstrual period, and had a nearly fatal hemorrhage in February, 1901. She lost weight rapidly (from 185 to 122 pounds in five months), and general health became bad. Examination showed pelvis filled by tumor.

After thoro preparation she was operated on July 26—Drs. Geo. Howard Thompson and Nellie Clark assisting. A large fibroid, which extended well above the umbilicus, was removed by morcellation after vaginal ligation of the uterine arteries; with great difficulty. Then the remains of the old ectopic gestation were cleaned out from the right side. The left tube, tho normal, was removed, but the ovary allowed to remain. There was great difficulty in removing the first section of the tumor, but after that slice after slice could be taken out quite easily.

Convalescence was speedy and satisfactory, except for a temporary post-operative insanity of mild type, and few days' duration. She was sent to her home (25 miles away), August 12—the seventeenth day after the hysterectomy—with wound well.

This case shows the speedy recovery after even a most severe operation as contrasted with the long stay in hospital under the old method of removal by abdominal section.

I have mentioned post-operative insanity as a complication in this case. It was not truly such—it was merely an accentuation of the very mild delusional insanity which was present before the operation. I have noted for many years that women with fibroid tumors of the uterus are nearly always slightly deranged—a form of mental alienation promptly cured by operation.

PECULIAR PELVIC ABSCESS FOLLOWING LABOR.

Mrs. L. M—— was admitted to the Woman's Hospital August 19, profoundly septic (temperature 104), with abdomen terribly swollen and general condition very bad—almost moribund. Stimulants were administered, and a mild saline laxative given (Abbot's effervescent salt).

The following history was obtained from her attendant, Dr. Phil. Scholz: She was 21 years of age, always well, pregnant first time without any trouble. July 13 she was confined by a midwife. On July 16 she had a slight chill, followed by high fever and great pelvic pain. A huge lump formed in the left iliac region—when a doctor was called. He used local and internal remedies without avail, and on August 9 called a surgeon, who pronounced the case hopeless. Dr. Scholz was then called into the case, and by appropriate medication, so improved her general condition as to permit her being moved to hospital.

August 20, with the assistance of Drs. Scholz, Murphy and Roulet, I curetted the uterus and then opened the abdomen in the median line. When the peritoneum was cut a quart or more of foul, stinking pus poured out. The abscess cavity extended from Poupart's ligament of the left side to four inches above the umbilicus, and two inches to the right of the median line. It was bounded below by the uterus and pelvic fascia, behind by the great omentum (which—thickened by inflammatory deposit—was the only barrier between the pus and the peritoneal cavity), and above and to the right by adhesions between the omentum and the parietal peritoneum. The cavity was carefully wiped out with gauze, irrigated and packt with bichloride gauze.

The temperature dropt to normal and general condition likewise improved. The wound, of course, has been allowed to close by granulations from below.

The peculiar features of this case were: (1) that the uterus was freely moveable; (2) that it had undergone involution apparently almost as well as if the abscess had not formed in such close proximity to it; (3) that the right tube and ovary were not—so far as could be determined—implicated in the purulent inflammation; (4) that the abscess was located so high that only a trace of its floor could be detected by vaginal examination; (5) that the location of the abscess was not in the Fallopian tube at time of operation—if originally there the tube had long since ruptured, owing to the immense quantity of pus present.

Fortunately for the patient, the free peritoneum did not have to be opened at the time of operation, death from acute sepsis being thus avoided.

HEAT-STROKE FOLLOWING HYSTERECTOMY.

Mrs. C——, aged 39 years, was admitted to the Woman's Hospital during the heated term of the past month, and subjected to vaginal hysterectomy for cancer of the uterus on the day when the government observatory recorded a temperature of 107 degrees in the shade.She had been in hospital two days before operation, was well-prepared and had a temperature of 99 degrees on the morning of operation, as well as on the two previous days—the evening temperature having been the same. There was no markt loss of blood during operation, amount of chloroform necessary not excessive, and the time required was less than forty minutes. No accident of any kind occurred, the viscera were not exposed—in fact, there was nothing out of the ordinary in the operative work. Catgut ligatures were used, and the peritoneum closed, except for a small opening for drainage. The vagina was packt with sterile gauze; bichloride gauze externally.

At 4 p. m. she was in good shape, temperature 100 degrees F., shock not great; but the temperature of the room was close to 115 degrees (from the western sun), and fluids were being completely withheld to prevent vomiting. At 6 p. m. (six hours after operation), her temperature was 103½, and an hour later 105½, with a hot, dry skin, thready pulse, Cheyne-Stokes breathing, and partial coma. A diagnosis of "heat-stroke" was made, ice applied to the head, cold sponge-baths ordered and dram doses of brandy given every half hour, with water, until free perspiration was establisht.

Under this treatment the temperature sank to 99½ by midnight; with return of consciousness and disappearance of all bad symptoms.

In the week which followed there was no further rise of temperature; and no evidence of septic infection. For this reason, as well as for the fact that the time—six hours—was too short for any septic absorption to have caused such tremendous elevation of temperature, I am certain that the trouble was due entirely to the excessive heat.

Dr Hugo Ehrenfest, consulting gynecologist to the St. Louis City Hospital, informs me that on the same day a similar rise of temperature was noted following a hysterectomy in that institution; a diagnosis of heat stroke was made; appropriate remedies applied; with uninterrupted convalescence following.

THE SURGICAL TREATMENT OF RETROVERSION OF THE UTERUS, WITH SPECIAL REFERENCE TO RELIEF OF INSANITY.*

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The writer's method of performing Alexander's operation is illustrated by the accompanying photographs.

ADVANTAGES.

(a) I consider this operation superior to all others because it insures a uniform shortening of the ligaments.

(b) It insures a permanent and strong fixation of the ligaments.

(c) It accomplishes this result without the necessity of placin sutures of any kind, temporary or permanent, for the purposes of fixation and shortening.

(d) This eliminates the possibility of fistulous tracks being establisht, because of the infected, deep, permanent suture, and obviating the occasional suppurating wound due to the buried absorbable suture.

(e) This method of fixation seldom gives rise to any pain at the point of attachment of the ligaments like that frequently complained of when the ligaments are attacht separately by the permanent suture.

I have carefully prepared a tabulated report covering a period of nearly five years, and including 61 cases of operation by this method. The following is a summary of the report:

Between January 1, 1896, and January 1, 1901, a period of five years, I have operated upon 61 cases of retroversion by the method illustrated by the cuts. I have been extremely careful in selecting my cases (as this comparatively small number would indicate), and my uniformly favorable and gratifying results undoubtedly are due to this careful selection fully as much as to the method of operating.

The first of January, 1901, I communicated by letter with as many of these patients as I could reach, and requested that they report in person at my office, or to their family physician when that was impracticable, or at least to state to me the condition of their health since the operation. By this correspondence, and in other ways, I have been able to get some kind of a report of 34 of the 61 cases. My records show that the other 27 cases were in perfect health when they left the hospital.

From 34 cases I received letters, reports from family physicians or (in the majority of the cases) had personal interviews and examined the condition of the pelvis. There reports were obtained from one-fourth to five years after the operation. There was one failure to accomplish a tying of the ligaments, because of one ligament breaking, and the ligaments were secured to the external rings with silkworm gut sutures. The case was successful. In case 31 the ligaments, when exposed and stript, were so small that I abandoned the Alexander for a ventral fixation.

*Abstract of paper read before the American Medical Association, 1901.

Of the 32 remaining, which I examined, all are reported well. One after five years; three after four years; six after three years; thirteen after two years and nine in less than two years.

PREGNANCY FOLLOWING OPERATION.

There have been seven cases of pregnancies reported. Of these six have progrest and terminated as perfectly normal cases. One case aborted at the fourth month without apparent cause. Case 7 was confined two years after the operation. An examination one year afterward demonstrated the uterus in normal position. Case 8 was confined two years after the operation and the uterus was in perfect position two years after the confinement, as shown by bimanual examination. Case 18 was confined two years after the operation. One year afterward the uterus remained normal. Case 32 was confined two and one-half years after the operation. The perineum was lacerated. The uterus returned to normal position. Case 28 gave birth to a full-term child eight months after the operation and an operation for repair of the perineum. The pregnancy was not suspected at the time of the operation. Case 41 was confined two years after the operation. The uterus still remains in perfect position. Case 54 is the one reporting the four months' miscarriage one and one-half years after the operation. The uterus remained in proper position after the miscarriage.

METHOD.

The author's method of treatment of retroversion is best described by the following illustrations:

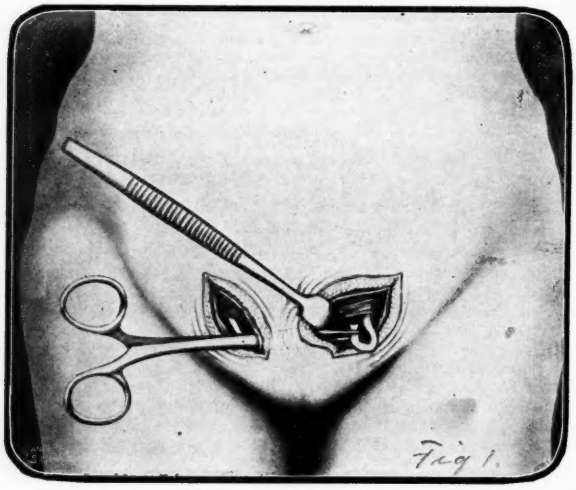


Figure 1 shows the two incisions necessary to expose the round ligaments on either side, one wound retracted that the point of the hemostat may be seen. This hemostat is passt in at the one opening across the median line and made to seize the round ligament of the opposite side after it has been liberated from all its attachments and made sufficiently taut to bring its cornu of the uterus well forward.

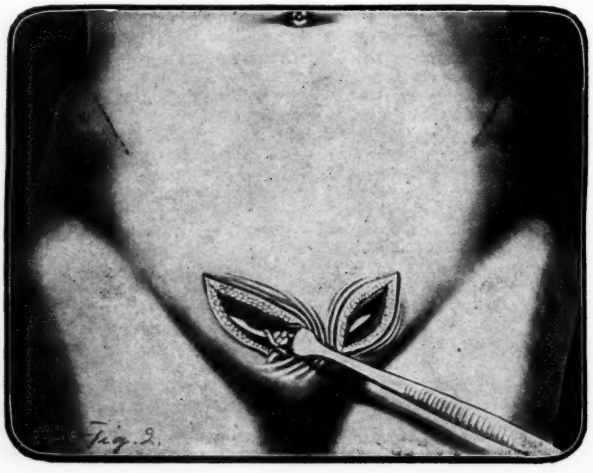


Figure 2 shows how the two round ligaments may be tied together in front of the parietal peritoneum which lies immediately in front of the fundus uteri when the womb in in normal position. The tissues are pulled strongly toward the median line while the process of tying is accomplisht. Any surplus of ligament may be cut away after tying. If the ligaments are too short to tie they may be sewn together with catgut; but the buried suture is to be avoided if possible, in order to give ideal conditions for perfect results.

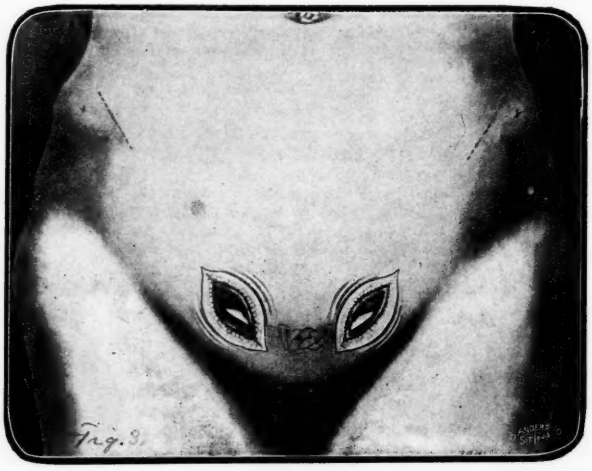


Figure 3 illustrates the actual condition of affairs after the knots have been tied and the retractors withdrawn.

ADVANTAGES OF MARTIN'S METHOD OF VENTRO-SUSPENSION.

The writer's method of ventro-suspension of the uterus consists literally of suspending the uterus on a strip of peritoneum taken from the side of the wound, as illustrated in the accompanying photographs.

As a result of much experimentation I have finally adopted this operation exclusively for all cases requiring a ventral suspension of the uterus for the following reasons: First, because of its simplicity and ease of accomplishment; second, because of the thoroness of fixation; third, because it positively does away with any form of permanent buried sutures; fourth, because it accomplishes a fixation which allows of a large range of movability; fifth, because the fixation does not directly involve the appendages; sixth, because experience demonstrates that the point of fixation is not the source of subsequent irritation or pain; seventh, because of the possibility of pregnancy occurring and going on to normal confinement after this operation.

INSANITY CURED.

I have also prepared a tabulated report covering a period of four years and including 173 cases operated upon by this method. Following is a summary of the report:

In the 173 cases, representing all cases operated upon for ventral fixation by this method in the four years beginning January 1, 1897, to June 1, 1901 (many of the cases including operations for laceration of the perineum, cervix, removal of the appendages and even myomectomy for fibroids), there were six deaths, or a primary mortality of 3.5 per cent. In but thirteen cases were there no complicating conditions requiring operations other than the laparotomy for the ventral fixation. In these there was no death. The appendages were removed for septic lesions as an accompanying operation of the ventral fixation in 114 cases. In five cases large ovarian cysts were removed. In four cases the appendages were removed for tuberculosis; in five cases for parovarian cysts; in 12 cases the appendages were removed and myomectomy was performed for accompanying fibroids of the uterus. In 29 cases the appendages were not removed. In 12 of these 29 cases conservative surgery was necessary on one or both ovaries. One case was accompanied by an operation for appendicitis. Of the 173 operations there were four which had an accompanying operation for ectopic pregnancy. Perineorrhaphy was an accompanying operation in 25 of the 173 cases. Curetment of the uterus was performed in 28 of the 173 cases. Trachelorrhaphy was performed in 19 of the series of cases.

Serious mental disturbances existed previous to the operation and was the paramount symptom for which relief was sought in nine cases. These were cases 21, 31, 41, 53, 61, 74, 79, 82.

In case 21 the patient was considered mentally unbalanced

by the family, with exascerbations at the menstrual period. The retroversion was accompanied with infected appendages. The appendages were removed and the uterus suspended. The patient was examined by me two years after the operation: the uterus was in perfect position and she was said by her family to be cured of her mental symptoms.

Case 31 had mental disturbances since birth of her last child, exaggerated at her menstruation. She had severe dysmenorrhea and menorrhagia and laceration of the perineum accompanying the retroversion. Curetment, perineorrhaphy and removal of the appendages were done at the time of the ventral fixation. In one year after the operation the patient was in perfect health, both mentally and physically.

Case 41 was a duplicate of the above case, except that the perineum did not have to be restored. At the end of one year the mental condition was improved, but not entirely relieved. The uterus remained perfect.

Case 55, unmarried, had cystic appendages, a retroverted and adherent uterus. She had "severe convulsions and became unconscious at her menstrual periods." The appendages were removed and the uterus replaced and suspended. Examination of the patient by me three years later revealed the pelvic organs perfect, and the patient stated that she had been in perfect health since the operation.

Case 61 gave a history of being mentally disturbed at the menstrual period. Her appendages were infected and the uterus fixt in retroversion. The appendages were removed. Three years afterward I examined the patient. Her uterus was well supported and her health absolutely perfect.

Case 74 gave a history of periodic insanity, much aggravated at menstruation. The woman was 21 years old and married. The appendages were infected and the uterus retroverted and adherent. The appendages were removed and the uterus suspended. One year afterward the patient was well.

Case 79, age 19, married, had large cystic appendages and suffered with excruciating dysmenorrhea and excessive menorrhagia. She had alarming nervous symptoms, which assumed a markt form of mania at her menstrual periods. The appendages were removed and the retroverted uterus replaced and suspended. Two years afterward I examined the patient and she was in perfect health, physical and mental.

Case 82, age 39, married, had double pyosalpinx, retroversion, with adhesions. She had symptoms of severe menorrhagia and periodic insanity, aggravated at the menstrual period. The appendages were removed and the uterus replaced and suspended. A letter from the patient's parents two years afterwards discloses the patient to be absolutely well.

FAILURES.

In the 173 cases nine failures must be recorded. These cases were 38, 49, 59, 90, 103, 108, 117, 155, 168. Among the nine failures I place six deaths, leaving but three to count for failures out of the 167 which recovered. Of these cases, 38 submitted to a vaginal hysterectomy, one year after the first operation, for carcinoma. The fundus was found well forward and well fixt with a broad, movable attachment.

Case 49 was not examined or interviewed by me, but she replied by letter that her health had not been improved. Her operation included the removal of very seriously diseased appendages.

Case 117, at the time of the operation for ventral fixation, had adneocystoma of both ovaries removed. The patient died in one and one-half years from malignant disease in the pelvis.

There were two cases of pregnancies occurring in the 173 cases. Case 36 gave birth without complications to a healthy child two years after the operation. There were no abnormal symptoms during the carrying of the child. One year after her confinement her uterus was in normal position and the patient well.

Case 132 was confined in normal labor one year after operation, giving birth to a healthy child. She had no abnormal symptoms during the child-carrying period. One and a half years afterward her uterus was in normal position and the patient well.

Ninety-seven of the 173 cases have communicated with me directly either by personal interviews and examination or report by the family physician, or direct correspondence at periods of from one-half to five years after the operation. Four thus reported between four and five years after the operation; 29 between three and four years; 21 between two and three years; 22 between one and two years, and 21 between one-half and one year.

METHOD.

Figure 4 shows the abdomen opened in the median line, low down; the fundus uteri brought well upward and forward; forceps passt beneath a good, firm "hold" of peritoneum upon the fundus and made to grasp a strip of peritoneum cut from the parietes with its lower end firmly attacht to the tissues at the pubes. The wound is to be held well open by retractors.

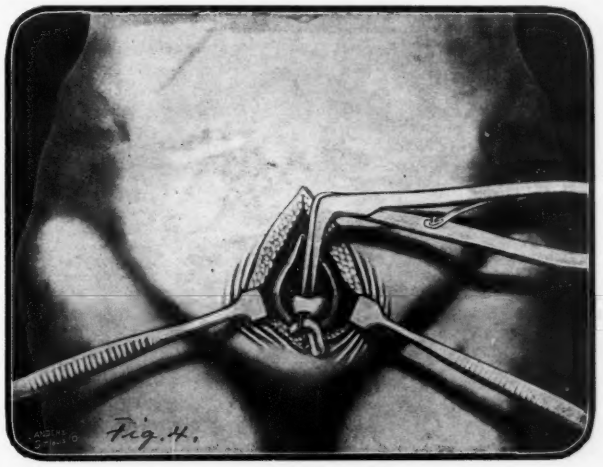
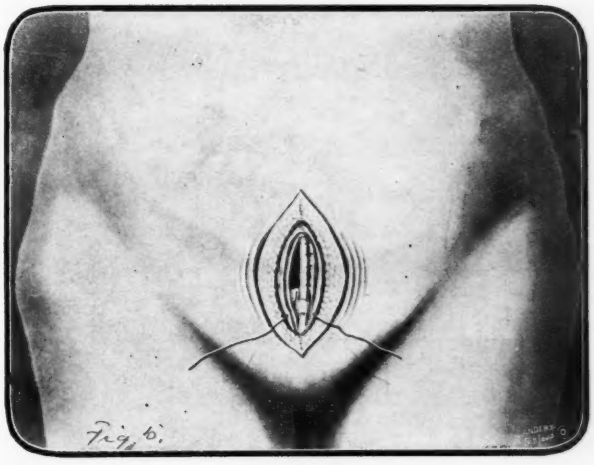


Fig. 4.



This cut illustrates how the strip of peritoneum appears after it has been passt thru the buttonhole on the fundus; and how it is sewn to the margin of the wound on the left side of the incision; also that a temporary additional support is given by the passage of a strong suture thru either side of the wound and well behind the emergence of the peritoneal support at the fundus. This is removed at the end of a few days, after adhesions have formed strong enough to maintain the uterus in proper position.

Figure 6 represents the appearance of the new ligament in a case operated upon for vaginal hysterectomy one year subsequent from the time of the ventral fixation. The drawing faintly but accurately represents the ligament as it appears at the time of the vaginal hysterectomy. Instead of appearing as a strip it was well defined as a cord about 1 mm. at its smaller part and three-fourths of an inch in length. Becoming distinctly enlarged, it was about 3 mm. at the attachment to the abdominal wall and also at its attachment to the uterus. This cord was smooth and covered with peritoneum. Upon serving, it appeared to have rather strong connective tissue center.

Figure 7 accurately represents the ligament as it appeared in a secondary laparotomy performed one year and a half subsequent to the laparotomy at which the ventral fixation was made. The secondary laparotomy was performed for the purpose of separating the adhesions between the small intestines and the repaired ovary on the left side. These adhesions were of such a character to produce severe pain and at several times almost complete obstruction of the bowel. The ligament in this case was very similar to that described in Figure 6. It was about three-fourths of an inch in length, of round cord-like consistence. While it allowed extensive movability of the uterus, it would not allow it to make an excursion into retroversion.

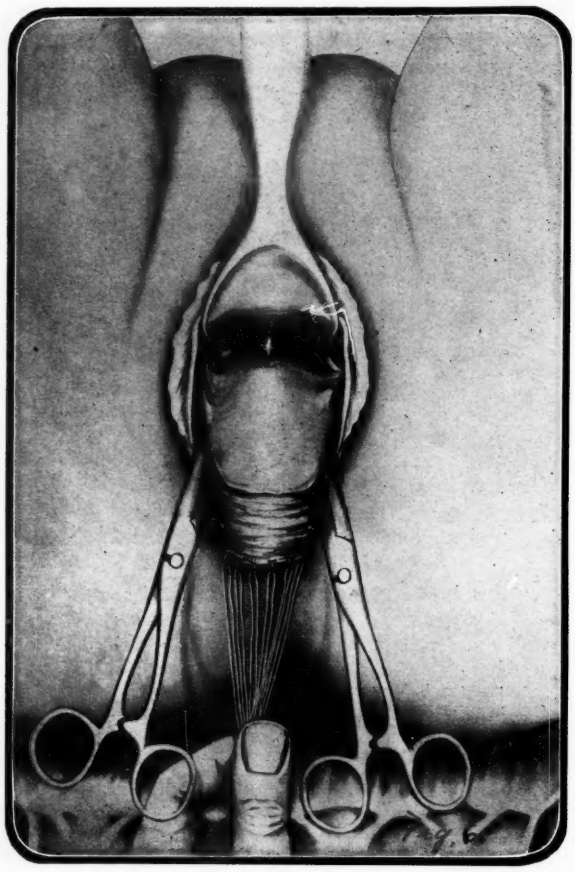


Fig 6.

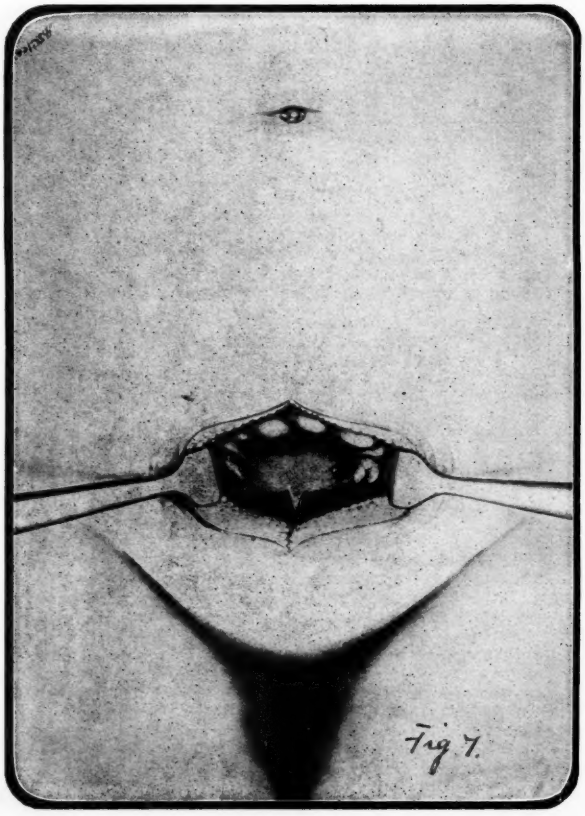


Fig. 7.

OVARIAN TUMOR; TUBE AND OVARY REMOVED FOR INFLAMMATION; ANTERIOR FIXATION OF THE UTERUS; MISCARRIAGE; VAGINAL FIXATION FOR PELVIC SUPPURATION; OVARIAN TUMOR.*

BY E. E. MONTGOMERY, A. M., M. D., PHILADELPHIA, PA.
Professor of Gynecology in the Jefferson Medical College; Gynecologist to Jefferson and St. Joseph's Hospitals.

You remember this patient is one upon whom we operated a week ago for a large

OVARIAN TUMOR.

She had undergone parturition two months prior, when it was found, after her delivery, that the abdomen remained greatly distended as a result of this ovarian growth. The pressure-changes during her pregnancy had caused twisting of the pedicle of the tumor, from which resulted decreast vitality and extensive adhesions between the surface of the tumor and the abdominal parietes. The contents of the tumor itself were changed instead of being a clear fluid; we had an extremely dark colored material from mixture with blood. In other words, as a result of the torsion of the pedicle the artery still continued to pump the blood into the growth, while the twisting interfered with the venous return. Consequently the vessels became overdistended, the capillaries were ruptured, and blood escaped into the cyst. The decreast vitality of the tumor and the changes resulting from the torsion of its pedicle produced inflammation and peritonitis, which caused the adhesion of the surface of the tumor to the abdominal parietes, making very extensive adhesions. You remember the tumor was emptied by cutting thru the surface of the peritoneum and the cyst-wall. The contents of the tumor were evacuated before the general cavity was opened. The stripping off of the cyst-wall from the peritoneum and breaking up of adhesions caused venous oozing. We found no arterial bleeding, so we simply satisfied ourselves with irrigation of the abdominal cavity and filling it with normal salt-solution to obviate the shock, as this fluid is readily absorbed. The temperature elevation following the operation has not been markt. At no time did it reach 101. Immediately after the operation there was some shock, temperature falling below 97, from which she, however, rallied quickly. She had markt nausea, which continued several days, with regurgitation of greenish material and considerable tympanites. Nausea for twenty-four hours may result from the anesthetic, but where it continues longer and results in the regurgitation of greenish material it is generally due to beginning inflammation of the peritoneum, and should be considered a symptom of more or less danger. The treatment of vomiting consists in putting as little in the stomach as possible, sustaining the patient when necessary by enemata, the administration of hypodermic injections of strychnine and such agents as will maintain the strength of the patient. If the patient continues to retch and vomit wihout being able possibly to throw up more than a small quantity of mucus or dark material, an effective method is to give a good draft of hot water, with or without bicarbonate of soda. This gives the patient something to vomit. If it continues, it is well to administer a Seidlitz powder. This is readily thrown up, removing a much larger quantity of the material in the stomach with it. If it is not vomited, it carries the fluid thru into the intestines, facilitates the evacuation and the removal of the vicious material in the normal direction. When a patient continues to retch and vomit often, a few mouthfuls of home-made bread dipt in ice-water will serve a useful purpose in affording something to keep the irritated surfaces of the stomach apart. In cases of markt depression, tincture of nux vomica in two-drop doses may be given every half hour. Sometimes two or three drops of 4 per cent solution of cocaine will afford relief, or the use of one-eighth grain of cocaine with five grains of oxalate of cerium every three hours may be better. Sometimes the rectal use of chloral, thirty grains, will quiet the nerve centers and give the patient sleep and arrest the vomiting. Where the patient continues to vomit, irrigation of the stomach with the stomach-tube and the subsequent employment of hypodermic injection of morphine will afford relief. In this patient the occurrence of tympanites and the vomiting of greenish fluid led the resident surgeon very properly to introduce the stomach-tube, after which there was a cessation of vomiting, and the subsequent improvement of the case has been uninterrupted. The mere washing out of the stomach afforded relief to the patient and her subsequent progress has been undisturbed. This procedure is sometimes required a number of times.

Where the tendency is to regurgitation of the contents of the intestines and the bowel, a kind of reverse peristalsis leads to distension of the stomach, interference with the heart's action and of the respiration, thru pressure upon the diaphragm. This, with the absorption of the products of decomposition from the material, produces a very markt depression, and is the cause of great anxiety. The evacuation thru the stomach-tube will frequently result in phenomenal improvement. I have seen numbers of patients in whom the employment of the stomach-tube has saved the patient, where no other means afforded relief. A

*Clinical lecture delivered at the Jefferson Medical College Hospital.

constant regurgitation of bitter, acrid material, the absorption of decomposing products, the mental anxiety induced and the intense burning and thirst associated with it, are all relieved by the employment of the stomach-tube. The patient secures rest, regains her nerve and hope, and the outlook becomes brighter. In these cases the best material for irrigating the stomach-tube is a normal salt-solution.

I have not lookt at the wound in this patient since the operation, and bring her here to-day with a view of examining the wound before you and removing the sutures. You will remember the incision was a short one, only a couple of inches long. It lookt longer at the time, owing to the stretching of the abdominal wall over this extensive cyst. In removing the sutures it is important to observe the same precautions we use in performing the operation, having the surroundings of the patient thoroly clean, the instruments sterilized, hands as clean as can be secured by repeated washing, when the sutures, the ends of which have been left long, are raised up and cut on the one side in such a way that no portion of the suture which has been outside shall be drawn back into the suture track. In that way we avoid the possibility of carrying infection into the track. I have seen cases in which the wound has seemed perfectly well at the time the sutures were removed, but, due to some carelessness in the technic, infection has then been introduced and suture-abscess resulted. All these sutures are cut before any are withdrawn, then, grasping the ends together, they are all removed at the same time, thus decreasing the amount of distress which the patient experiences. The wound is again carefully washt and recovered with the sterilized dressing. In a patient with an abdomen such as this one, where the muscles have been relaxt by previous pregnancy and divulsion of the recti muscles has occurred, it would be well to supply some support to prevent the sagging of the abdomen which must necessarily result with the increast avoirdupois which follows such an operation.

In this patient, in her convalescence, are illustrated some of the difficulties that follow the abdominal operation. Tympanites has been relieved by the stomach-tube. Sometimes we will find this procedure only relieves the distension of the upper part of the alimentary canal, while the lower portion, involving the intestines and colon, will be very greatly distended, causing more or less peristalsis of the intestinal track, and if permitted to remain long enough, results in absolute loss of power of the viscera. Tympanites, then, is a symptom which should be treated early. As soon as distension of the abdomen begins, measures should be instituted with a view to its relief. If the patient is much deprest or has been in an enfeebled condition prior to the operation, I know of no better treatment than that suggested by the younger Keith, which consists in the employment of an enema containing six grains of quinine, half an ounce of whisky and two ounces of water; to be given every hour until three doses have been taken. This acts as a stimulant to the nerve centers, increasing the peristalsis, and when not effective in accomplishing the purpose, should be followed by an enema of an ounce each of magnesia, glycerine and water, or better, the sulphate of soda. This increases the irritability, promotes serous exudation into the rectum, favors peristalsis and the evacuation of the bowel. This ineffective, we would employ an enema consisting of a quart to three pints of soapsuds, to which an ounce of turpentine mixt with the yolk of two eggs has been added after being strained thru gauze, the patient placed upon her side, preferably the right, and the pelvis elevated. The nozzle of the syringe is introduced into the patient and the tube held by the nurse, who is directed whenever the patient begins to complain of discomfort to squeeze the tube between her fingers until the spasm of distress has passt, when she shall again allow the fluid to flow, and in this way fill up the large intestine. Contraction of the bowel at any point is overcome by the presence of the fluid permitting the bowel to be evacuated and the gas to pass. In place of turpentine, inspissated ox-gall, two drams to half an ounce, may be employed, or two ounces of tincture assafetida, either of which increases intestinal peristalsis. In weak, debilitated patients, the activity of the nerve centers is maintained by hypodermic injections of one-thirtieth to one-twentieth grain of strychnine every three or four hours, or even as often as every two or three hours.

REMOVAL OF THE TUBE AND OVARY FOR INFLAMMATION.

The next woman is thirty-eight years of age, her father is living and in good health, while her mother died of diabetes at sixty-six; has several brothers and sisters in fair health; the patient has never been pregnant, husband is in good health; she has been married eighteen years. She suffered from pertussis in childhood, believes herself to have weak lungs. Puberty was establisht at fourteen, periods regular, occurring every three weeks, and during her early life she suffered from dysmenorrhea and fainting at menstrual periods. She had an attack of pneumonia at twenty-one, and the year following a second attack, as well as one of pleurisy. She has never been strong since the first attack of pneumonia. Eight years ago she underwent vaginal operation for malposition of the uterus, which, she states, had grown to the rectum. Two years ago she began to have continuous pain and tenderness in the hypogastrium and lumbar regions, which were relieved by curetment. She was well for a year and a half, when she was seized with severe pain in the left inguinal region, which confined her to bed for three or four weeks, during which she was unable to straighten the left leg. For the next six months she was able to be about, but in rather poor health. During this time vaginal tampons of hydrastis were employed. A few months ago she was seized with excruciating pains in the posterior cervical region, which subsequently shifted to the head; this did not last more than a few minutes, when there was profuse expectoration of foul, yellow fluid for two minutes, which was supposed to have been discharged from the head or pharynx. She suffered after that with a confused feeling in the head. At present she has a dull, heavy feeling in the stomach, which is increast by food, suffers from nausea and vomiting, sometimes vomits material which is greenish and sour. Vertigo is frequent, not infrequently she has anesthesia of the limbs. Of late, she complains of slight pain in the abdomen and back. Her menstrual periods are painful. The bowels are obstinately constipated. No bladder symptoms are present. This patient, as you recognize from the history, has had a great vaviety of symptoms. Whether she has had a pharyngeal abscess or one involving the head is difficult to determine. We are also without any light as to the character of the operation which was instituted for malposition of the uterus. At present, upon pelvic examination, we find the uterus retroverted, a mass upon the left side which is closely attacht to the uterus and extends around it. This mass is not as firm as the structure of the uterus. It gives the sensation of elasticity, and I believe it to have followed an attack she had in February last, when she evidently had inflammation of the left tube. This mass upon superficial examination makes a deep angle between the uterus and cervix, so as to lead one to suspect a flexion of the uterus, but upon more careful investigation its situation and relation to the uterus are of such a character as to indicate it as an inflammatory exudate rather than a malposition of the organ. While the uterus is in a position of retroversion, I am unable to recognize a flexion. It is probable that the long continuation of this displacement, associated with inflammation, has resulted in the development of a more or less markt disturbance of the stomach. The reflex irritation of such a displaced and inflamed uterus would be sufficient to maintain and prolong the gastric disturbance, and I am sure that no treatment of her stomach would be effective in affording permanent relief so long as this pelvic lesion remains. Undoubtedly the quickest method for relief of the abnormal symptoms would be to treat the pelvic lesions which continue to disturb her nervous system just so long as they exist.

We will first dilate and curet the uterus, with the hope that one ovary and tube may be in such a condition as to permit of retention. If we simply operate upon one diseased ovary and tube without securing drainage from the uterus, the other tube and ovary will sooner or later become involved. We find ample justification of Tait's assertion in the earlier treatment of pelvic lesions, that where one ovary and tube are so diseased as to necessitate their removal, the other tube and ovary would have to be sooner or later removed, and with a view of obviating this we advocate re-establishing the uterine drainage. The disease in these cases first originates in the uterus, and travels thru it by the continuous mucous membrane to the tubes and ovaries. In rare cases, it may travel directly thru the uterine walls, inducing a perimetritis and an inflammation of the cellular tissue without involvement of the tubes and ovaries. These cases, however, are rare. After the uterus is dilated it is packt with iodoform gauze, which is permitted to remain for two or three days. We now open the abdomen, break up adhesions, separate the tubal mass upon the left side, and remove that tube and ovary, finding the other ovary and tube comparatively free from disease. The adhesions are broken up and the uterus is then fastened to the anterior abdominal wall. This method of treatment results in the relief of the reflex phenomena and, I have no doubt, will bring about a great improvement in her condition of health.

MISCARRIAGE.

The next patient is thirty years of age, has had nine pregnancies, in three of which she has miscarried. Her husband has some lung trouble. As a girl she had hystero-epilepsy; at thirteen she had typhoid pneumonia; puberty occurred at twelve, the periods were always regular, but the flow was so slight as to require the care of a physician. She has had no attacks of hysteria

for four or five years, her labors were normal, and so far as the patient is aware, she underwent no injury in childbirth. Her last child was born a year and a half ago, and five weeks ago she had a miscarriage at three months' gestation. From the beginning of this pregnancy she had a very offensive discharge, yellowish and streakt with blood, which ceast for a day or two and then recurred. It was thick and stringy in character during the entire gestation and associated with severe pain in the right groin and lumbar regions, a daily headache, either frontal or coronal, frequent attacks of tympanites during the pregnancy. She was continuously tired, weak and yet obliged to work hard. At the end of the first month she sought to terminate the gestation by the introduction of a bougie into the uterus. This she did but once, as she was afraid to repeat the act. The physician who attended her in the miscarriage asserted that the fetus had been dead two months. The same physician doucht her frequently and washt out a large quantity of dark, bloody material. Since her miscarriage she has noticed pain in the right groin and hip, which is greatly increast by movement of the corresponding leg. For the past three weeks she has had almost continuous discharge from the genital canal of a yellowish, malodorous fluid, in quantity sufficient to soil two or three napkins daily. When the discharge is free the pain is less, except that for two or three days preceding admission the pain and discharge are lessened. She was unable to void urine and had to be catheterized.

Before discussing this history further I will bring before you another patient, a woman twenty-two years of age, whose father is apoplectic, and mother dropsical from heart disease. She had one child eleven months of age, no history of miscarriage. Her health had been good until puberty at eleven, the menstruation was regular, associated with pain in the back. At thirteen she had la grippe, with which she was confined to bed two months. Following this for six years she had epilepsy. She suffered with diphtheria at eighteen, was married at nineteen and had good health until the birth of the child eleven months ago. The labor was difficult, an instrumental delivery, during which she was torn. After the confinement the recovery of her general health seemed prompt and complete. Partial incontinence of urine has been present since childbirth. About a month since she first noticed hypogastric discomfort and pain in walking. The pain and tenderness increast until two weeks before her admission. She was confined to bed. Her bowels were generally constipated and defecation painful. Micturition was painful, frequent and the quantity of urine large. Her face, as you see, looks well.

I bring these two patients before you on account of the fact that both denied to their physicians the occurrence of abortion, while there were indications of an abortion as a cause of the attack. In both of these patients we have evidence of pelvic suppuration. In the first patient the whole pelvic floor was indurated, the induration extended between the rectum and vagina, into the recto-vaginal septum, was hard, dense, an inch and a half in thickness, extended around the bowel and presented indications of an abscess about to rupture into the intestine. An operation was done upon this patient before a section of the class, and you remember we thoroly cleansed the vagina and made an incision thru the recto-vaginal septum, to one side of the rectum. The incision was so free that the finger could be introduced into this mass, and at once there was a discharge of pus. The opening was then enlarged, permitting the finger to break up the adhesions and cellular tissue and afford vent to the pus. We burrowed with the finger to the right side of the uterus. This was a case of pure cellular inflammation about the uterus; infection had undoubtedly occurred thru the blood-vessels, and been carried into the cellular tissue without having originated from tubal disease. She presented no indication of tubal disease on either side. The second patient came to us with a history of having a discharge of pus from the rectum, and now acknowledges an abortion shortly before admission. The pelvis was filled up with a large collection, which extended into Douglass' pouch and to the right side of the pelvis. The sac extended half way to the umbilicus. Careful palpation disclosed an accumulation within the pelvis. The history of the patient, the pain and distress she had experienced, the elevation of temperature, rapid pulse, sweating, all pointed to suppuration. We undoubtedly had pelvic suppuration, and the question before us was to decide as to the method of treatment. How shall this pus be evacuated? Shall we make an abdominal incision, by which the contents shall be evacuated thru the abdominal wall, or shall a vaginal incision be employed and drainage thru the vagina? This is a serious question, which is agitating the minds of the medical profession, and especially those who treat abdominal diseases. On the one hand, there are those who claim that an abdominal incision should always be made, while others advocate the vagina as the proper outlet. There is unquestionably a happy medium between these two extremes—of the one who would do all operations thru the vagina, and the other all thru the abdomen. In a patient with a large accumulation of pus in the pelvis it certainly seems unwise to interfere with the barriers nature has provided, which close off such a collection from the abdominal cavity. If we can respect these barriers and evacuate the collection without interfering with them, we are certainly following the course which will cause the least disturbance to the general health of the individual, the least strain to her vitality and afford her an opportunity to regain her strength and health. In this patient the history of the escape of pus thru the rectum assured us we had a fistula which might complicate the subsequent convalescence. Notwithstanding this, the fact that the collection of pus extended so well into the pelvis and could be so readily recognized from below caused me to decide that the proper plan of procedure, and the one which would cause the least strain upon her vitality, would be the vaginal incision. This incision was made before a section of the class, and a quart of foul-smelling pus evacuated thru the vagina. The incision was not simply a puncture—and this must always be kept in mind in evacuating a pus-collection in the pelvis; it was a free incision, affording an opportunity for the thoro breaking up of adhesions and the evacuation of the abscess contents. There was no danger here of injury of intestines, as they are held well away by the large accumulation. The knife could be passt freely and quickly thru the vaginal wall and its edges graspt with the tenaculum, the parts separated, extending the incision with the scissors; any vessels that bled were readily seized with hemostats and, if necessary, subsequently secured by ligature. The pus emptied, the cavity was irrigated with a normal salt-solution, carefully examined with the finger and the absence of further pockets of pus demonstrated. The cavity was then packt with iodoform gauze, which filled it and kept it open and afforded a free vent for further discharge. The patient's temperature had been between 101 and 101.6. After the operation it returned to normal and has not since more than twice reacht 99.

Here have been two patients with pus-collections in the pelvis which we have been able to evacuate thru the vagina and save the patients from most serious operations. If we had opened thru the abdomen, we could not have prevented this large quantity of pus from entering the peritoneal cavity and more or less infecting it. We would necessarily have broken down the barriers that nature has provided and pus would have covered coils of intestines. It would have been necessary to have broken up adhesions and to have drained the cavity against gravity. The removal of the tube and ovary would have been necessary to render her free from subsequent infection, so by this vaginal operation much less manipulation has been required. In the other case, an abdominal operation would not have met the indications, as we would have been unable to break up the cellular inflammation from above, as the pocket of pus was situated so low in the pelvis that it extended within an inch of the vulvar orifice. The abdominal operation would have had to be supplemented by a vaginal incision, with greater danger to the patient. Some of you had an opportunity last Friday of witnessing an operation in which I had decided to make an abdominal incision, because I felt the uterus was destroyed by disease, and because the vaginal operation would be attended with difficulty and increast danger, with possibly the inability to remove the entire amount of disease. The vaginal operation was done by a visiting physician and was attended with the greatest difficulty and danger to the patient. We all felt after the operation had been done, the operator as well as myself, that the abdominal operation should have been chosen in preference to that thru the vagina.

DIAGNOSIS OF RENAL CALCULUS.*

BY F. D. CARPENTER, M. D., SAN FRANCISCO, CAL.,
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The diagnosis of renal calculus depends upon the proper interpretation of a few facts and a few symptoms. Chief among these are pain, urinalysis, physical examination, catheterization of renal pelvis, and the use of the X-ray.

PAIN.—As to the pain, it is not necessarily characteristic, but is generally an index to the proper course. It is usually lumbar, dull and aching, with (at times) acute attacks of great severity, which respect neither time nor place. Sleep may be rudely disturbed, as may the busy hours of day. Months or years may have gone by, replete with this history of pain—pain that has permitted the patient to labor, but not to forget—pain not content with infesting the loin, but seeking at times the course of the ureter, the testicle, the gastro-intestinal tract, and even the

*Read at the meeting of the San Francisco County Medical Society, April 9, 1901.

thigh. These pains are the result of the irritation of the renal pelvis or the ureter by the retained calculi, which culminates in a peristaltic contraction of pelvis and ureter, in the effort of nature to do her own surgery; which effort is sometimes successful, tho painful. The passage of a calculus thru a ureter frequently produces pain so characteristic in severity and location, shooting down the course of the ureter, as to leave little doubt as to the diagnosis. The location of pain will guide one to the proper kidney, and manipulation or bi-manual manipulation of this kidney will probably elicit more and severer pain.

On the other hand, a stone may exist for years in the kidney or the bladder and the patient be little or not at all inconvenienced thereby.

URINE.—The condition of the urine is one of the strongest confirmatory circumstances in determining the diagnosis. The presence of blood, pus and certain urinary salts points to the true condition. Stone in the pelvis or calices of the kidney will produce blood, by causing an ulceration of the tissues with which its rough walls come in contact. The blood may be in large or small quantity, continuous or intermittent. It may require the microscope to determine its presence, or it may cause a uniform darkening of the entire bulk of the urine. Bodily exercise is supposed to increase the production (which it undoubtedly does), but it also increases the flow of blood from the kidney just the same when caused by a tumor or other condition; hence this circumstance can scarcely be lookt upon as diagnostic. The long-continued, uninterrupted bleeding from a kidney, without pain or characteristic sediment in the urine, is more likely to indicate tumor or other condition than stone.

Pus is as constantly found in the urine as blood, and it is equally important to determine its source. The irritation, and possibly ulceration, produced by the calculus will furnish a supply of pus corpuscles in the urine, tho, like the supply of blood, it may be more or less intermittent. In the female it is an easy matter to determine whether the blood and pus come from the bladder or kidney, and if from the kidney, which one. By means of the cystoscope the ureters are catheterized, or the urine is drawn directly from the pelvis of the kidney by means of the renal catheter. In the male, after thoro irrigation of the bladder, the urine may be collected from each kidney separately by means of the Harris separator. This gives quick, reliable results, and should be resorted to in doubtful cases. Catheterizing the male ureters is possible in the hands of those who practice it, and when it can be done, may be left to the judgment and skill of the person responsible for the case and its necessity. This matter of catheterization of the ureters is of equal importance for the purpose of determining the condition of the unaffected side. The pain alone will generally indicate which kidney contains the stone. The examination of the fresh urine is important, as indicating the kind of stone. A strongly acid urine, associated with an early deposit of uric acid crystals, almost certainly indicates that the stone retained is of the uric acid variety. If, under like circumstances, the crystalline deposit is of calcium oxalate, the stone is probably of the same character. Al alkaline urine will indicate changes in the urine after it has reacht the bladder, and will suggest that probably a stone of uric acid or oxalate of lime has been subjected to a second deposit of phosphates. Stones, or fragments of stones, previously passt furnish a very reliable guide to the nature of the remaining stone. Albumen is very likely to be present in the urine, especially if blood and pus are found; also varying quantities of epithelium from the renal pelvis. Associated with the pain, with blood and pus in the urine, the patient, during an acute attack, may suffer from nausea and vomiting, with profuse perspiration, with frequent desire to urinate, or possibly with diminisht or suppresst secretion of urine, with chills, high temperature or even collapse.

PALPATION.—Physical examination is seldom positive in results. The kidney is sometimes tender, and very exceptionally a calculus can be felt in the ureter in very thin subjects. A diagnosis must be made between movable kidney, tuberculosis, malignant growth, nephralgia, oxaluria, uric acid, diathesis, phlebitis, renal abscess, peri-renal abscess, spinal caries. The differential diagnosis must exclude stone in the bladder. The location of pain in the loin, tenderness over the kidney, a highly acid urine, are sufficiently definite. The pain in the back, along the ureter, the retraction of the testicle, hematuria, together with the character of the urine, are generally sufficient to distinguish it from gall-stones or intestinal colic. Malignant growths can frequently be felt. If any hemorrhage, it is apt to be greater.

Tuberculosis of the kidney produces more pus than blood, and in the thickened pus may sometimes be found tubercle bacilli. Movable kidney, besides producing colicky pains, can be felt in its abnormal position. Nor does it cause blood in the urine.

EXPLORATORY INCISION.—In doubtful cases of possible renal disease, an exploratory operation is justified, and should be done.

X-RAY EXAMINATION.—The latest, and perhaps one of the most reliable means of confirming a diagnsosis is the X-ray. Considerable work has been done in this direction, both with renal calculi and gall-stones. The method is possible in thin subjects and with the machine in good working order. As the shadow picture depends for its perfection upon the density of the object thru which the ray must pass, it follows that a gall-stone will give a less dense shadow than the harder and more compact renal stone, especially those of uric acid and oxalate character, and the contrast between stone and flesh and bone will be less markt than in the case of kidney-stone. The possibility of good results is in favor of the latter, for the reason that the ray passes perpendicularly thru the kidney to the plate under the body, and has less of fat and soft tissue to traverse than in the case of gall-stones, when the thickest part of the body is interposed. Several operators have met with success in this procedure, and in such event the diagnosis is not only verified, but subsequent treatment indicated, as this would be very materially modified if the X-ray plate shows a kidney studded thruout with sand and gravel, rather than containing one or two large stones in the pelvis.

Personally I have not yet been fortunate enough to find a renal calculus by means of the ray. I have however, demonstrated the possibility of locating a calculus in the bladder, a large oxalate in a man of rather good physique. The plate shows it very plainly, leaving no doubt as to its presence or its character. In the case of an unsuspected calculus such a disclosure would be of very material aid in either bladder, kidney or gall-bladder. I have made a few experimental plates by placing renal calculi under the loin, then passing the X-ray thru the body and stone to the plate placed underneath it. In every instance, in very thick people, I have been able to get the shadow of the stone on the plate. The conditions here are as nearly as I could approximate to the actual clinical condition, the difference only being that the stone in the experiment is nearer to the photographic plate than is the stone in the kidney, but in each the ray must penetrate the same thickness of tissue. The abdomen is the most difficult portion of the body to X-ray, yet I believe that sooner or later this will be one of the establisht means of confirming the diagnosis.

CYST OF SPLEEN—SPLENECTOMY—RECOVERY.*

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The patient was a woman, aged 30 years, white, the mother of three children,of good family history,and previous good health. Even at the time of examination she was exceedingly well nourisht, with rosy cheeks and red lips—no indication of any tendency to leukemia—of good appetite and excellent digestion.

She presented an abdominal tumor wholly unlike any other I have ever seen; and especially peculiar in that when she would lie down for some minutes the mass would gravitate, as it were, toward the diaphragm; and then would appear to be wholly above the umbilicus. It could be seized with the hands and pusht to apparently every part of the abdomen; and when she assumed the erect posture, it would descend again to the pubic region.

It was easily determined to be cystic in character as fluctuation could be distinctly produced. In size it was fully equal to that of a man's head. It had never given her any pain or other serious trouble aside from its weight and the worry of its presence..

After considerable study I came to the conclusion that it was either an ovarian cyst with an extremely long pedicle or a wandering kidney which had undergone cystic degeneration.

Operation was proposed and accepted. On opening the abdomen the cyst presented, was seized and tapt. It was found to be a cyst of the spleen; and as the entire organ seemed likely to be diseased I removed it. Examination after removal shows that a part of the splenic tissue is comparatively healthy in appearance—the large cyst being the chief departure from the normal. The pedicle was made up of folds of peritoneum and the splenic vessels; and on account of its great length the arteries and veins were so easily tied that scarcely a tablespoonful of blood was lost—a markt contrast to some splenectomies.

The head of the pancreas was attacht slightly to the healthy portion of the spleen.

In the brief time at my disposal I have not been enabled to look up the literature of cystic tumors of the spleen, but I believe they must be very rare. Indeed, splenectomies for any trouble have not been very numerous. I find—in a search of far less extent than the interest and importance of the subject

*Reported to Louisville Medico-Chirurgical Society.

should demand that the first removal of the spleen performed in England was by Sir Spencer Wells in 1865; resulting fatally in six hours. The first successful splenectomy was performed by Pean in 1867; so the entire subject is of comparatively recent occurrence. There is, it is true, mention of a case occurring in the sixteenth century, but it is of rather doubtful character.

In so late a treatise as Dennis' System of Surgery, publisht in 1896, Dr. M. H. Richardson, of Boston, in an elaborate article on the subject of "Surgery of the Spleen," had been able to collect only eleven cases in which splenectomy had been done for cysts, tho quite a number of operations had been performed for hypertrophy, etc. This collection was made from the table of Hahn, and the mortality reported was 18 per cent.

On January 18, 1901, Ashby, of Baltimore, reported to the Clinical Society of Maryland (noted in a late number of American Journal of Surgery and Gynecology), a case of splenectomy which is more like this case than any I have met within a rather hurried examination of the literature. This was a case where he supposed he was dealing with a fibroid tumor of the uterus, and the tumor was impacted (incarcerated) in the pelvis. The woman had elevation of temperature at the time of the operation, which was supposed to be due to a twisted pedicle or some lesion of the tumor itself. He did an abdominal section, removing the spleen, and the woman immediately proceeded with four weeks of markt typhoid fever; five other members of her family were down at the same time with typhoid. Tests were made and every possibility of mistake eliminated, so the case was undoubtedly one of typhoid fever. The operation did not seem to complicate her illness, and she made a good recovery. He reported the case several months after her convalescence was completed, when she had gained twenty pounds in weight and was in excellent health.

Removal of the spleen presents the question at once as to how the economy will bear such deprivation. All that has been observed in the cases reported by Richardson is, that there is, for a time, a diminution of the red blood corpuscles and an increase of the white blood corpuscles; but after a time the ratio is re-establisht, so it seems to be undoubted that the spleen is an organ which is not absolutely essential to life or to normal health.

My patient had an attack of bronchitis immediately following the operation which gave her a great deal of discomfort: cough, mucous expectoration, etc., which has since subsided; otherwise her convalescence was just the same as if the operation had been done for simple ovarian cyst.

THE DIAGNOSIS OF GALL-STONES.

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Biliary calculi may form, and exist, in the gall-bladder, and frequently in other parts of the biliary passages, without the manifestation of any symptoms whatever. The solitary variety of gall-stones, when it is present, is usually of so large a size as to be impossible to pass down the ducts, or to become engaged in the neck of the cystic duct. These stones generally give rise to no unusual symptoms whereby their presence can be detected by subjective symptoms. It remains latent as a distinct, hard, large tumor. The patient in such cases can sometimes experience a heavy, dragging sensation in the hepatic region, and associated with this a certain amount of pain and uneasiness. By examination such a condition can frequently be detected by the physician, by its distinctly hard feel and rounded shape. If the abdominal wall is particularly thin, this can more readily be detected. Generally they are not definitely localized during life, altho the patient complains of vague and uncertain pains at times. The same is true of small calculi. In this case they may be so small as to pass almost unnoticed down the cystic and common ducts until they reach the lumen of the duodenum when they pass in the feces, giving no trouble whatever. It is, therefore, in the two extremes of sizes, large and very small, that few or any symptoms of gall-stones are noticed. To a certain degree this is true of medium sized stones. It is somewhat remarkable that in postmortem examinations the gall-bladder is found containing a large number of stones of a size that could pass a certain distance down the tubes, at least, before being gript tightly, yet during life no line of symptoms of sufficient importance were manifested. The size of a calculus that can escape from the bile-ducts has been variously estimated. Large, soft concretions, which can be molded into an elongated pencil-shaped rod, will pass down with a lesser degree of pain and discomfort than a smaller one that may be hard and unyielding. A uniformly round calculus, tho hard, will, on the other hand, give rise to less pain and reflex spasm of the muscular fibers than one of similar size that is angular and sharp pointed. The latter, by its projections, sticks into the mucous folds and generally causes an intense degree of pain and disturbance. Occasionally very small concretions, when together, and passing down the tubes, cause a great degree of pain during their escape; they do so by irritating the mucous membrane by becoming blockt in places.

There are two points in the passage of a gall-stone where lodgement is most liable to occur. Consequently it will be while the calculus is endeavoring to pass thru these that the most pain and discomfort is liable to take place. The first is in the cystic duct. When describing the anatomy of this duct we mentioned that the two opposing walls by alternate reduplications of the mucous membranes approacht each other almost to the point of interdigitating. This is known as the valve of Heister. The consequence is that the lumen is very much narrowed and nearly always is the first point of impediment to the progress of the stone, and where the first acute paroxysm of pain is caused. The common bile-duct being composed of the cystic and hepatic, is much larger than is the cystic. A concretion that will pass thru the cystic duct will with greater ease and a much less degree of discomfort pass thru the common duct, unless some abnormal condition exists in the latter. The second narrow point is just where the common duct passes into the duodenum. It is here joined, as already stated, by the pancreatic duct, and together they pass obliquely downward and inward thru the coats of the bowel for three-quarters of an inch. This is the narrowest point of any in the passage of a gall-stone. It not infrequently happens at postmortem examinations that a number of stones are found lodged here unable to pass thru the narrow point beyond. It is important to remember this, for sometimes the abdominal wall is opened with the expectation of finding gall-stones in the gall-bladder, and investigation is carried no further. It is well to feel all along the ducts, and especially in the region of the diverticulum of Vater. It is but natural to suppose that people of large size will have larger bile ducts than those of smaller stature, and in them the same sized calculus would pass with but a small degree of discomfort, whereas in smaller people it would meet with a greater amount of resistance.

Sometimes in patients with thin abdominal walls, when a sufficient number of calculi accumulate in the gall-bladder, so as to cause it to sag below the free margin of the liver, the stones can be felt by the fingers and their movement against one another easily recognized by manipulation.

The peculiar condition of finding an enlarged and distended gall-bladder at one examination, and probably a few days later the distension has entirely disappeared, is interesting. It is usually caused by the impaction of a stone in the neck of the cystic duct acting as an obstruction to the free outflow of the contents of the gall-bladder. This distension is caused by the accumulation of mucus secreted normally from the walls of the bladder. The stone in the cystic duct acts as a ball-valve, and when the distension from mucus reaches a certain stage, it to a certain extent dilates the neck of the cystic duct and causes the stone to fall back into the gall-bladder, the accumulation of mucus escapes, and the gall-bladder resumes its normal size once more. To the uninitiated this alternate enlargement and diminution of the gall-bladder is extremely puzzling.

Frequently the stone becomes lodged so far beyond the cystic duct that it does not act the part of a ball-valve, but remains firmly fixt in the meshes of the valve of Heister. In such cases the gall-bladder will not alternately enlarge and diminish, but remain permanently distended. The physical signs accompanying a distended gall-bladder are usually quite easily recognized. The shape assumes the regular pyriform contour of a normal bladder much enlarged. Occasionally it may be sausage-shaped. From about the region of the ninth costal cartilage the fundus will be deprest downward and slightly inward, in a line toward the umbilicus. When much distended and enlarged, the lower part of the gall-bladder may reach down even below the umbilicus.

Altho the distension of a gall-bladder is usually caused in this manner, it is not always so. Not infrequently inflammatory conditions of the mucous membrane of the gall-bladder (and which may result as the effect of colelithiasis or other causes) may cause the formation of a quantity of thick, ropy mucus, which may give almost as much obstruction in the cystic duct as a calculus. Another condition which may cause obstruction to the free output of the contents of the gall-bladder is a kink in the cystic duct. When the number of calculi in the gall-bladder are sufficiently heavy as to cause a slight displacement, it may so drag on the cystic duct as to cause the reduplications of the mucous membranes to approximate tightly together and act as a valve, thereby obliterating the lumen for a short distance.

The liver being attacht to the diaphragm and the gall-bladder to the under surface of the liver, a distended bladder in thin subjects can be detected moving downward during inspiration and upward with expiration. Rarely an enlarged gall-bladder has

considerable freedom of movement. I have examined a number of such cases where the enlargement was quite distinct, and where the heavy gall-bladder would gravitate far to the right or left, according to the position assumed by the patient when in a recumbent position. Afterward, at the operation, it has been discovered that in such instances the gall-bladder is found entirely surrounded by peritoneum and held suspended by a mesentery. When inflammation of the gall-bladder is associated with distension, as it sometimes it, exudations may be thrown out, which may form adhesions either to the abdominal wall or surrounding viscera. It is well in all cases of suspected gall-stones to make a thoro examination in the region of the lower margin of the liver. When such enlargement can be recognized, the great probabilities are a distended gall-bladder with gall-stones is present. Frequently there may be a linguiform process of liver reaching down from the lower edge of the liver, and which will be extremely difficult to distinguish from a gall-bladder. Fortunately, it is almost always associated with gall-stones, and is considered by many authors to be pathognomonic of their presence. Occasionally the gall-bladder may protrude to one or other side of this linguiform process, when the two conditions can be recognized.

In rare cases the distension of the gall-bladder may assume large proportions: reaching down toward the right iliac region. It may then so simulate a hydronephrosis or an ovarian cyst as to be with difficulty distinguisht. When the dullness can be followed down from the liver by percussion, as it sometimes can in favorable cases, the nature of the enlargement can be ascertained generally. Little collateral evidence is present in the majority of such cases. Jaundice is seldom a symptom, for when an occlusion takes place in the cystic duct, jaundice is not necessarily a symptom. It is only when impaction takes place in the hepatic duct or common bile duct that jaundice inevitably results.

When the cystic duct is completely obstructed no bile can pass back from the hepatic or common ducts. The contents of the gall-bladder will, therefore, be the mucus that is normally secreted from its walls, and when inflammatory conditions exist, serum and fibrous exudations will be added thereto. When the impaction is permanent the pigment already contained in the bile that may be in the gall-bladder becomes absorbed and the liquid shortly assumes an amber or straw color. It is composed of mucin, cholesterin and, when inflammation exists, as it usually does in a chronic form, there will be lymph, serum, a little pus and occasionally a few red blood-corpuscles. The longer the obstruction lasts the more clear does the fluid become, until it consists wholly of mucin, which is generally quite clear in color. It is then known as hydrops cystides felleae.

As the subject is of great practical importance to the surgeon, the diagnosis of a distended gall-bladder should receive the utmost care and attention. The condition is one that may be closely simulated by other pathological abnormalities, and for this reason a consideration of the physical signs and symptoms of each I will now relate. The difficulties which arise in diagnosis are generally associated with one of the following pathological conditions, viz:

1. Floating or movable kidney.
2. Hydronephrosis.
3. Linguiform process of liver.
4. Ovarian cysts.
5. Growths in head of the pancreas.

1. FLOATING OR MOVABLE KIDNEY.—This is much more frequently found in women than in men; but so are gallstones. Furthermore, floating or movable kidney is in nearly every instance found on the right side; it is at least thirteen times more frequent on this side. In distinguishing between a distended and enlarged gall-bladder and a floating kidney of the right side the previous history should be closely investigated in order to elicit, if possible, any previous attacks of hepatic colic, jaundice or evidence of inflammation or uneasiness in the region of the gall-bladder or biliary ducts. Floating kidney is more liable to be confounded with enlargement of the gall-bladder than is simple movable kidney. The former is surrounded by peritoneum, has a mesonephron and moves freely about in a limited degree in the abdominal cavity. A movable kidney is placed behind the peritoneum, and its movements are limited to a space artificially created by itself. A floating kidney having a mesentery has much greater freedom of movement, and may rise close up under the anterior abdominal wall. The most prominent symptom of floating kidney is a dull, heavy, dragging pain shooting from the region of the kidney along the abdomen to the thighs. Frequently this pain is felt quite distinctly in the labia or testicles, as the sex may be. The pain may be aggravated during menstruation or by constipation. Occasionally there are paroxysmal attacks of colic, which soon pass away. Disturbances of micturition not infrequently are associated with floating or movable kidney. Often there is present symptoms of flatulence, sickness, anorexia and diarrhea. Many cases present anomalous and varying symptoms, which are extremely irregular and conflicting. The majority are no doubt due to reflex nervous conditions, that can only be attributed to the vagaries of the sympathetic system in highly sensitive patients. Percussion over a floating kidney frequently elicits a note more or less tympanic, for the colon lies over the kidney, whereas over a distended gall-bladder a dull note is produced. During inspiration and expiration a gall-bladder moves downward and upward, respectively. Respiration has no effect on a floating kidney, but the mass has a tendency to slip away with a sudden jerk from beneath the fingers when presst upon. By inflating the colon with gas the gall-bladder is pusht forward against the abdominal wall where, in subjects with thin abdominal walls, it can readily be felt. The same inflation will force the kidney backward and upward where it cannot be felt. It will be found that the differences herein enumerated are more difficult to distinguish in actual practice than they seem on paper; only by careful investigation of the various symptoms on both sides, by accurate summation of all the symptoms, and probably by submitting the patient to an examination under an anesthetic, will the diagnosis be intelligently establisht.

2. HYDRONEPHROSIS.—This is caused by an obstruction to the flow of urine in some point of the urinary passages, and consequent accummulation of fluid in the kidney. Many conditions have been set down as the causes. Impaction of the urinary calculi in the ureter, twists, kinks, stenosis, pressure of growths, inflammatory bands and cancer in the pelvic organs have each and all been given as causes of hydronephrosis. The symptoms are exceedingly variable, and in the absence of enlargement of the kidney are generally misleading. In many there is little or no pain; in others a great amount. Partial or absolute suppression of urine will be present when both kidneys are affected, as they are in about one-third of the cases. The size to which a distended kidney may attain varies from anything above normal to a tumor that may fill the greater part of the abdomen. Like a distended gall-bladder, it may intermit in size, and from an identical reason. A calculus may become impacted in the pelvis of the kidney or beginning of the ureter and so dam back the urine secreted so that a great degree of distension is the result. From assuming different positions of the body, or from the distension itself liberating the valve-like calculus, it may fall back and allow the pent up urine to flow on and the tumor to diminish in a short time. When this diminution is associated with a sudden increast flow of urine, a strong suspicion of hydronephrosis should be entertained.

3. LINGUIFORM PROCESS OF LIVER.—A deformity of the liver, which consists of a tongue-shaped process developing from its lower edge and reaching down to the extent of three inches, may, when present, lead to a difficulty in diagnosis. The condition is acquired and is the result of colelithiasis. As already stated, its presencé is pathognomonic of the presence of gallstones.

4. OVARIAN CYSTS.—One would not imagine that there would be any difficulty in making a diagnosis between a distended gall-bladder and an ovarian cyst of small or medium size; yet cystic enlargements of the right ovary have frequently been confounded with this condition. Occasionally an ovarian cyst is found so far up as to be readily mistaken for a distended gall-bladder. The writer remembers operating on a woman for suspected gall-stones with distended bladder, and found a small ovarian cyst with quite firm attachments to the lower margin of the liver. Usually, however, there should be little or no difficulty in making a distinction.

5. GROWTHS OF THE PANCREAS.—Tumors of the pancreas may be mistaken for a distended gall-bladder. Cysts of the pancreas are exceedingly rare. When present they are generally centrally located, deeply seated, fluctuate and are not influenced by respiration. By puncture a clear viscid fluid containing an abundant amount of albumen, which coagulates by heat and nitric acid, will be produced. They should not be mistaken for a distended gall-bladder.

A CASE OF SPLENECTOMY WITH RECOVERY.*

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Splenectomy is still a sufficiently rare operation to justify the report of a single case, all the more so when the patient is the subject of leukemia, a condition distinctly contraindicating surgical intervention, except for the most urgent reasons.

The patient, Jane McK., aged 27 years, American, single, without occupation on account of her disease, residing in Vienna, Mo., was seen September 25, 1900, on account of what was sup-

*Abstract of paper read before the Medical Society of City Hospital Alumn February 21, 1901.

posed to have been an enlarged and floating kidney. Physical examination quite easily demonstrated that the large tumor occupying the left side of the abdomen and extending from above the lower border of the rib to and into the pelvis was not a kidney at all, but a very much enlarged and freely movable spleen. I quote now from the hospital records:

FAMILY HISTORY.—Father living and healthy at the age of 70 years, mother 61 years of age. Five brothers and one sister.

PAST HISTORY.—Usual diseases of childhood; mumps at eight years, penumonia at fourteen years. Menstruation began at seventeen years; has always had dysmenorrhea. Her present trouble began in early girlhood with pains of a dull, heavy character in the left side, most severe in the left inguinal region. For a long time she had periods of perfect comfort, but about one year ago pains became more severe, recurred more frequently, lasting two or three days, with intermissions of the same duration; she had occasional hot flushes, vertigo and persistent cephalalgia. For the last three years her feet and legs, as far as the knees, became much swollen, blue and even black, painful to the touch, pitting on pressure; no varicose veins. Examination showed a large tumor on the left side, extending from beneath the ribs down into the bony pelvis. The tumor is quite movable, changing position with the patient's movements, not painful on manipulation, quite firm, round and smooth. No glandular enlargement and no enlargement of the superficial veins. The urine had specific gravity of 1020, dark amber, clear, acid, no albumin, no sugar, no bile, no excess of indican; microscopically negative.

OPERATION.

October 12, an incision eleven and a half inches in length was made from the free margin of the ribs in a straight line parallel with and two inches to the left of the median line, exposing a spleen enormously enlarged, capsule smooth and mottled, showing the thickening of an old perisplenitis, quite dark and congested.

The pedicle was long enough to permit of delivery of the organ. The splenic artery was large, the vein greatly distended, admitting the tips of three fingers on section. The pedicle was tied off in sections, twelve ligatures of No. 99 braided silk being used; the distal end was clampt and the organ removed. At the time of the removal the organ weighed five pounds and two ounces. The wound was closed and the patient put to bed; she rallied well; saline enemata administered; no shock.

October 13.—Comfortable, except for gaseous distension; sleeps well.

October 17.—Superficial sutures removed, wound healing; blood examination for plasmodia negative; leucocytes and eosinophiles increast; yeast fungi and mold present.

October 18.—Epistaxis and bleeding from the gums. Anterior nares plugged.

October 20.—All sutures removed.

October 24.—Temperature has gradually risen to 103. Diarrhea. Blood again examined—no plasmodia found; leucocytes still increast in proportion to red cells. Urine for twenty-four hours, seventeen and a half ounces.

October 25.—Urinalysis: Specific gravity 1030, faintly acid, 2 per cent of albumin, no sugar, some epithelial and mucous cells, urates in excess, yeast fungi and molds and granular casts; few red blood cells.

October 26.—Urinalysis: Specific gravity 1020, acid, dark amber, slightly cloudy, one-half per cent of albumin, no sugar, mucus and flat epithelial cells, few red blood-cells; calcium oxalate crystals, yeast molds and some granular casts.

October 28.—Urinalysis: Specific gravity 1010, faintly acid, amber, clear, three-fourths per cent of albumin, no sugar, many bacteria, yeast molds and a few faintly granular casts. Diarrhea continues.

November 1.—The patient very comfortable. Diarrhea has ceast.

November 12.—Blood examination: Leucocytes still increast, but not as largely as before; eosinophiles more abundant; no plasmodia.

November 15.—Urinalysis: Specific gravity 1020, clear, acid, no albumin, no sugar, some mucus cells, calcium oxalate crystals and a few bacteria.

November 19.—Discharged from the hospital.

November 23.—Blood examined: No plasmodia, very few eosinophiles, white cells not as numerous as before. The patient appears well. No enlargement of the thyroid or lymphatic glands.

International Journal of Surgery says that when there is a dribbling of urine in the bed, attended by the usual disagreeable urinous smell, the odor can be made less obnoxious by pouring some turpentine upon the sheets, where it will not touch the patient's skin. This counteracts the stink to a remarkable degree.

THE PREVENTION OF COMPLICATIONS AFTER PERITONEAL SECTION.*

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In a paper entitled "An Improvement in the Technic and After-treatment of Peritoneal Section," (American Journal of Obstetrics, Vol. XXXVI., No. 1, 1898), I called attention to a systematic method of inducing peristaltic action as soon as possible after a peritoneal section for the purpose of preventing intestinal paralysis and adhesions.

After employing the method for many months with the sole object of reducing mortality I began to notice that my ordinary cases were doing exceptionally well, so to speak. There were practically no "temperature cases," no crying for morphine, no bloating, no fixt pains, and seldom any subsequent pain in the ovarian regions even when firmly adherent appendages had been removed. Formerly the after-treatment was troublesome, and the patient was often many months in recovering from her symptoms, but now the after-treatment became exceedingly monotonous for want of complaint on the part of the patient. Hence I began to use the treatment in simple as well as complicated cases in order to make the patient more comfortable and to render the convalescence more rapid.

The method there advocated consists in administration of four drams of fluid extract of cascara, or some equivalent, two hours before the time set for the operation, dram doses of sulphate of magnesia every hour from the time the patient awakes after the operation, and a high glycerine and water enema (two to four ounces) every two hours, beginning eight hours after her return to bed.

A high glycerine enema may be given before the patient leaves the table after operations in which large adhesions are separated and raw surfaces left. A prompt movement of the bowels and a free passage of flatus not infrequently results from this enema before physic has time to operate. Hence I now give it as a routine practice in order to save, as far as possible, the trouble connected with giving a nauseated patient the salines and later enemas.

As I said in that paper, the treatment must, as a rule, not be discontinued until the patient passes flatus, not only with the enemas, but also freely between enemas, i. e., efficient peristaltic action should continue at intervals. I forgot at that time to call attention to the important fact that means must be taken to maintain frequent peristalsis, and secure a daily evacuation of the bowels, after the first days. To this end two drams of sulphate of magnesia or two or three ounces of Hunyadi water must be given night and morning for two weeks, the doses being regulated according to the effect. In this way there is but little chance for the occurrence of adhesions at any time.

In the simpler cases of peritoneal section treated in this way the patient can, without harm, get out of bed in ten or twelve days, if the abdominal incision is entirely healed and properly supported.

The treatment may be somewhat modified to suit different cases. Thus if a patent be in need of a stimulant, I usually add an ounce of whiskey to the enema that is administered on the operating table, giving what in the Woman's Hospital we call the "one, two three enema," viz.: one ounce of whiskey, two of glycerine, and three of water. In patients who have lost much blood a large, high beef-tea enema is given instead, and is repeated every four hours. If the beef tea is made strong enough the enemas will usually, within twenty-four hours, start up vigorous peristaltic action.

If the patient cannot take sulphate of magnesia, an ounce of Hunyadi water, or an ounce and a half of the liquid citrate of magnesia, or half an ounce of the granular citrate may be substituted. In some cases oxgall enemas (a half ounce of inspissated gall to half a pint of water) are used when the glycerine does not act well.

*Read before the Chicago Gynecological Society.

Dr. H. Horace Grant, of Louisville, at the New Orleans meeting of the Southern Surgical and Gynecological Association, reported the result of 253 operated cases of gunshot wounds of the abdomen, gathered by circular letter. The mortality rate is 52 per cent. He concluded that no case was injuriously affected by the operation. He found 108 cases in which a lesion existed, operated on by expert surgeons, the mortality rate being 49 per cent. He therefore maintained that the indications for an immediate exploratory operation, by an experienced hand where the ball has been traced into the cavity, are as imperative as the call for operation in strangulated hernia.

NOTES ON VAGINAL CELIOTOMY WITH REPORT OF CASES.*

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SYNOPSIS. (1) Excision of a portion of the anterior uterine wall; (2) incision of the anterior uterine wall for exploratory and therapeutic purposes; (3) supravaginal hysterectomy; (4) hysterectomy—(a) with ligatures; (b) without clamps or buried ligatures.

The report of cases is made brief by the elimination of unimportant and uninteresting details in the histories.

1. EXCISION OF A PORTION OF THE ANTERIOR UTERINE WALL.

The operations were made as follows: The abdominal cavity was opened thru a T-shaped incision in the anterior fornix; the opening widely stretcht and the anterior wall of the uterus incised along the median line to a point nearly opposite the Fallopian tubes. About one-half of the anterior uterine wall was then excised. The uterine wound was sutured into the vaginal wound; that is, one line of sutures closed the vaginal and uterine wounds. The bladder-peritoneum was not sutured.

CASE 1.—Mrs. K. O., aged 38, suffered from a large, movable, retroflext uterus. The principal symptoms were: menorrhagia, leucorrhea, dysmenorrhea, pain in back, across the lower abdomen and pain on defecation. The fundus of the uterus had some months previously been sutured to the peritoneum of the bladder thru a vaginal incision. Examination showed the uterus to be retroflext and much increast in size. On April 16, 1900, I operated with the intention of making a firm vaginal fixation. After opening the abdomen, however, the uterus was found so much increast in size that it seemed impossible to keep it in a normal position by any method of abdominal suspension or vaginal fixation and that it would require a long time for it to return to its normal size if the usual treatment were employed. It therefore, seemed necessary to remove a portion or all of the uterus to effect a cure. The above operation was then decided upon and done. The recovery was as easy as is usual after a vaginal fixation of the uterus. This patient was examined about six months after operation and the remnant of uterus was about the size of the normal organ and in good position.

Microscpocial examination showed hyperplasia of the portion of the uterus removed.

CASE II.—Miss M. L., aged 30, was referred to me for menorrhagia, which had been quite severe for the last year. Examination showed the uterus about twice the normal size and a small fibromyoma was diagnosed in the anterior wall of the uterus. No cause of the disease could be found in the history. Operation was made August 15, 1900, as described above. After the abdomen was opened a fibroid could not be found in the uterus, but the uterus was abqut twice its normal size. The increase in size consisted principally in thickening of the anterior wall of the uterus. Most of the anterior wall was excised and had the appearance of a myoma. Microscopical examination showed the excised tissue to be composed almost entirely of myomatous tissue, but no capsule was present. Recovery was satisfactory, except a part of the wound healed by granulation and a fistula resulted, which was due to early removal of the sutures as a precaution against complications in case of labor. This patient was examined two weeks ago. The uterus was in about normal position and size and the menorrhagia relieved.

The value of removal of a portion of the anterior uterine wall in severe cases of uterine hyperplasia cannot be determined by this limited experience. The operation in these two cases was done in order to avoid removal of the uterus. The operation, however, I hope, will be of value in the treatment of the very limited class of uterine hyperplasia for which hysterectomy has been advised and practist. The operation. permits of perfect curettage of and topical application to the endometrium which cannot be accomplisht with the usual methods employed. The objection to the operation is the danger that the uterus will be so firmly fixt that complications will occur in case of pregnancy. This danger can, I believe, be entirely avoided by the use of figure eight silkworm gut sutures for the closure of the wound and by the early removal of the sutures.

2. INCISION OF THE ANTERIOR WALL OF THE UTERUS FOR DIAGNOSTIC AND THERAPEUTIC PURPOSES.

CASE I. Mrs. M. P., aged 31. Ill two years. Complained of menorrhagia, which was constant at times. The uterus was enlarged, hard and sensitive to pressure. Her history was negative in regard to the cause of the hemorrhages. The presence of a small fibroid was suspected in the uterus. Operation was made October 16, 1899. The sound and curette failed to indicate the presence of a fibroid. After the abdomen was opened it was impossible to determine whether a fibroid was present or not on account of the enlarged and hard uterus. Incision of the anterior uterine wall was then made for exploration and showed the disease to be a hyperplasia of the uterus. The endometrium was much thickened, especially in the horns of the uterus. After thoro curettage the uterine and vaginal wounds were closed by thru-and-thru silkworm gut sutures. The sutures were removed on the sixth day and she left the hospital on the seventh day. Menstruation did not appear the following two months, as the result probably of the thoro curettage or of the anemia consequent upon the hemorrhages. The uterus returned so rapidly to its normal size and consistence as to suggest the operation for the relief of difficult cases of hyperplasia of the organ. Examination about one year later showed the uterus to be not abnormally fixt or pathologically anteflext.

CASE II.—Mrs. J. B., age 32, was referred to me by Dr. Gurney Stubbs. She had suffered for three months from severe uterine hemorrhages at irregular times. The bleeding had been controlled somewhat by the use of tampons, but she was very anemic. The history gave no cause for the hemorrhages. She was taken to St. Luke's Hospital on June 28, 1900. Examination showed an enlarged uterus. The pelvic organs seemed normal otherwise. On the 28th and 29th of June, 1900, lamanaria tents were inserted to produce sufficient dilatation for digital exploration of the uterine cavity. On the 30th an anesthetic was given and the uterine cavity explored. The sound and curet failed to show sufficient cause for the hemorrhage, altho the mucous membrane was somewhat thickened. The tents had not produced sufficient dilatation for digital exploration. The abdomen was opened thru the anterior fornix. The anterior wall of the uterus was then divided along the median line. The uterine cavity contained a pouch in the right horn filled with a large amount of tissue which, on microscopical examination, was found to be hypertrophy of the endometrium. With the curette I had failed to remove any of the hypertrophied membrane in the horns of the uterus. The peculiar condition of the horns of the uterus was due to the organ being slightly of the bicoronate variety. The uterine cavity was again very thoroly curetted, and the vaginal and uterine wounds closed with thru-and-thru silkworm gut sutures. She was up on the fourth and left the hospital on the fifth day. Dr. Stubbs informs me that she bled so profusely on the following period as to require the use of tampons, but that she has been perfectly well since then.

In these two cases I was unable to make a positive diagnosis, even after exposing the anterior uterine wall by vaginal celiotomy, until the uterus was incised. In both cases the treatment could not have been so effectively made without the incision, and in the second case I believe the curettage would have been useless had the incision not been made. Should I have occasion to incise the anterior wall again in such cases I would close the wound by "the figure of eight suture," so as to diminish as much as possible the adhesions between the uterus and vagina.

3. SUPRAVAGINAL AMPUTATION OF THE UTERUS.

Mrs. C. R., aged 50. Illness dated from birth of second child, twenty years ago. Menstruations had been regular until five years ago. For the two following years they occurred every two to four months. For the last three years she has suffered from uterine hemorrhages, which occurred every three weeks and lasted ten to twelve days. Complained of constant backache, leucorrhea and much pain on walking and standing. The uterus was prolapst, retroflext and about three times the normal size. She also had a large cystocele and rectocele. Operation was made October 5, 1900. The peritoneal cavity was opened thru a T-shaped incision in the anterior vaginal fornix, the anterior wall of the uterus divided along the median line and the body of the uterus delivered into the vagina. The upper portion of both broad ligaments was clampt so as to include the ovarian vessels, the ligaments incised between the clamps and the uterus, the uterine arteries clampt laterally to the cervix and the uterus amputated thru the cervix. Ligatures were now substituted for the forceps; that is, one ligature for each forcep. The mucous membrane of the cervix was excised. A portion of anterior vaginal wall was also excised so that the sutures, when applied, would restore the anterior vaginal wall to its normal position. Sutures were now introduced thru the anterior vaginal wall to the left of the wound, thru the edge of the peritoneum near its point of reflection on the bladder, thru the cut edge of the broad ligament and out thru the peritoneum on the posterior wall of the cervix and right side of the vaginal wound. These sutures, when tied, left very little denuded surface exposed in the peritoneal cavity, fixt the anterior vaginal wall to both broad ligaments so as to eliminate the cystocele and closed the vaginal and peritoneal wounds. Two or three sutures restored the vaginal portion of the cervix to its normal contour. An extensive Hegar's

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perineorrhaphy completed the operation. The patient complained of very little pain after the operation and left the hospital at the end of three weeks.

This patient was examined yesterday and the result seems perfect. The vaginal scar resembles a slight tear thru the anterior lip of the cervix—and the cervical canal is completely closed. Dr. H. D. Peterson examined the patient for me without being informed of her history or of the treatment that had been employed and reported as follows: "Vaginal canal normal; scar in anterior lip of the cervix probably the result of a slight laceration, cervical canal closed, uterus not palpable on conjoined manipulation."

The advantages of the operation are:

1. It leaves in contact the base of the broad ligaments, the posterior vaginal wall and the cervix. The vagina is more normal than after complete hysterectomy, and the pelvic floor possibly stronger.

2. It is a smaller operation than a complete hysterectomy and proportionally less dangerous, more easily performed, and the patient makes an easier and more rapid recovery. It is not applicable to malignant cases or to the bad purulent cases in which the broad ligaments are much involved and free drainage indicated. Like the ligature method in hysterectomy, it may be found difficult to perform thru a small vagina.

4. HYSTERECTOMY.

While discussing vaginal celiotomies I desire to urge the use of ligatures instead of clamps in suitable cases, and to call attention to a technic which is not in common use. I now use ligatures, in suitable cases, instead of clamps: there is diminisht amount of pain after operation, there is less risk of intestinal adhesions and recovery is more rapid and less dangerous. The use of a catheter, which is always objectionable, is avoided. The technic is as follows:

(a) The vagina is separated from the uterus; the peritoneal cavity opened anteriorly and posterioly to the uterus; the anterior cavity opened anteriorly and posteriorly to the uterus; the anterior livered into the vagina.

(b) A clamp is then placed on the upper portion of each broad ligament, internal or external to the ovary and tubes, as indicated, and the ligaments divided between the clamps and the uterus. The base of each broad ligament is clampt, divided and the uterus removed.

(c) A ligature armed with a short needle is now passt about the tissues, including one clamp, and tied as the clamp is removed. This is done with each forcep. These ligatures may be buried or the knot may be left in the vaginal canal so they can be removed. When tied in the vaginal canal a portion of the vaginal wall is included with each portion of the broad ligament in each of the four ligatures. When the sutures are tied in the vaginal canal the ones which include the base of the broad ligament should be inserted and tied first, as they close the opening less than do the other two. When the knots are left in the vaginal canal the sutures are inserted so that each end of the suture passes thru the edge of the vaginal wound.

(d) The insertion of a few thru-and-thru silkworm gut sutures, which pass thru the edges of the anterior vaginal wall, the bladder peritoneum, of the rectal peritoneum and posterior vaginal wall, completes the operation.

This method of hysterectomy should, I believe, take the place of the old method (of ligate and cut until the entire round ligament is ligated and cut), which seems to be in common use and is the only ligature method which I have seen other operators employ. The special advantages of this method are:

1. It is easily performed.
2. Four ligatures only are used.
3. The tissues can be more firmly ligated than when the ligature is applied before the ligament is cut.
4. Very little denuded surface remains after the operation is completed.

The simplicity of this technic is well illustrated by the mention of a case I operated for Dr. I. N. Danforth. The operation was for a fibroid of the uterus in a virgin, which increast the size of the organ about three times. The uterus was easily removed and the operation completed in less than one hour, altho the uterus was large and the vagina very small.

The editor of International Journal of Surgery says, emphatically, that impaction of a foreign body in the esophagus for more than twelve hours, notwithstanding efforts made to dislodge it, must be treated by external incision at once. It does not matter how mild are the symptoms presented by the patient, severe disturbances are bound to come on soon, especially if, as is nearly always the case with impacted bodies, it has sharp or pointed edges.

SURGICAL NOTES.

A peculiar recovery from what appeared to be a fatal obstruction of the bowel following operation is mentioned by Haemig (American Medicine). The patient was a man 59 years of age upon whom the removal of the right kidney had been performed on account of carcinoma that involved the vessels and the ureter. Everything went smoothly until the sixth day, when the patient, who in the meantime had had no evacuation of the bowels, complained of tympanites. The following day there was collapse, and the condition of the patient became so much worse that it was impossible to think of operation. All the signs of acute intestinal obstruction were present. As the outcome seemed necessarily fatal it was decided as a last resort to give him an injection of atropine, and 1-20 gr. was accordingly given! The physiological results were very pronounced. There was dilatation of the pupils, active delirium and small filiform pulse. The following day the patient was better, but it was necessary to give him a subcutaneous injection of normal salt solution. The pupils then became normal in size, the bladder was evacuated of 1,300 c.cm. by catheter, and there was some feculent vomiting. The same evening an injection of oil produced an abundant evacuation of the bowels, and the patient rapidly recovered. The cause of the obstruction could not be determined. It is not likely that peritonitis existed, and there were no signs of hernia. It is possible, however, that thrombosis had occurred in the mesenteric artery.

A very efficient soap for polishing instruments (according to Medical Summary), may be prepared by incorporating two parts of powdered emory and one part of magnesium carbonate with ten parts of tallow-soap softened with a very small quantity of water. A good polish in powdered form is obtained by mixing four parts of prepared chalk, four parts of magnesium carbonate, and seven parts of red oxide of iron.

Krause has recently publisht the details of a case of hemophilia cured by injections of gelatine. The family history showed that a maternal uncle of the patient had bled to death after the extraction of a tooth. The patient, in his early childhood, had frequently had severe epistaxis. During the past eight years he had suffered from frequent attacks of swollen joints, more than one being usually affected at once. In view of the helplessness of such cases, and of the good results sometimes following the injection of gelatine salt-solutions in aneurysm, it was resolved to attempt that treatment in this case. The result was surprising. Whereas, hitherto the accumulation of blood in the left knee (which of all the joints had been most swollen) had returned 24 hours after the joint had been aspirated and washt out, the blood squirting out of the puncture opening in a large stream as soon as the thoroly bloody dressing had been removed, now, after the injection of 200 c.cm. of a one per cent gelatine salt solution, not a drop of blood entered the joint. Five more injections of 200 c.cm. of a two and a half per cent solution were made, partly into the joint and partly subcutaneously. Since then the patient has had no more hemorrhages into his joints or otherwise, and his anemia has nearly disappeared. Commenting on which, Courier of Medicine, says: In view of the harmlessness of the above procedure, and considering the uselessness of other therapeutic measures in hemophilia, it would seem that the injection of gelatine salt-solutions are at least well worth a trial in this disease.

Ferguson believes with Fraenkel that the majority of hernias in infants should be treated by radical operation, but differs from him as to the operative technic, claiming that it is only necessary to thoroly free the hernial sac, ligate it, and close the parietal wound by a thru-and-thru suture to obtain a prompt and lasting cure. He does not insist upon all these cases being operated on, holding that when the truss is well borne and proves adequate, this should be employed. But during the period of youth and adolescence very few cases are cured by trusses, and therefore the great majority should be subjected to operation.

A case of cyst of the omentum in a girl seven years old is recorded in New York Medical Journal, July 20, 1901, by Dr. A. Jacobi, of New York. Some four years previous to operation a diagnosis of ascites had been made, (probably of tuberculous origin), and two quarts of clear, slightly bloody serum were withdrawn. Two years later the swelling, with fluctuation, returned and the child was again tapt. The following years the abdomen filled again and 300 cubic centimetres of slightly bloody serum were withdrawn, when the operation was interrupted by an obstruction in the trocar. The patient was operated upon one month later. A thin-walled cyst presented, which, when drawn out of the ab-

dominal cavity, was found to contain about two quarts of straw-colored fluid in its main cavity, and was incorporated in and involved the greater part of the great omentum, the cyst narrowing off into two pedicles as it approacht the stomach. These pedicles of the omentum were ligated and the cyst was easily removed.

The use of ethyl chloride as a general anesthetic—now becoming popular for short operations—is discust by Dr. M. W. Ware (American Medicine), and the effects compared with nitrous oxide, as follows: In the administration of laughing gas we have rigidity, cyanosis and increast hemorrhage, while in ethyl chloride narcosis there is a small percentage of rigidity, but never cyanosis. Other advantages are its portability and the fact that it requires no expensive apparatus for its administration. As the drug is so fugacious it is not likely to give an overdose, and the danger of cumulative effect is practically nil. It is best administered to children and young adults, and is not advised to be used in robust individuals. The author places the failures of this anesthetic at 56 per cent, and gives the following reasons for them: (1) by a prolonged period of excitation, it being impossible, owing to the fugacious character of ethyl chloride to produce the paralytic effect on the cortical centers; (2) altho the patient is seeminly narcotic, any painful manipulation causes muscular rigidity as the expresssion of increast reflex excitability and this interferes with any finer manipulations. The author only recommends it in minor operations, and as a preliminary to cut short the agonies of the early stages peculiar to chloroform and ether.

A case of rupture of the right kidney, with successful nephrectomy, is recorded in Texas Courier-Record of Medicine, by Dr. G. R. Trowbridge, of Buffalo, N. Y. The patient was a Pole, aged 43 years, weight 160 pounds, height 5 feet 8 inches; laborer. On April 24, 1900, he was struck by a coal car going rapidly down a grade in the tunnel of the coal-trestle of the Lehigh Valley R. R. This tunnel is cut thru solid limestone and the walls are consequently unresisting. Whether he was struck in the back by the car itself and thrown against the side of the tunnel, or whether he struck his back against the wall of rock, the doctor was unable to ascertain, and he was not positive about it himself. He was brought five miles to Buffalo on a locomotive and taken to the Fitch Hospital. Immediately on his admission he exprest a desire to urinate and past nearly one and a-half pints of bloody urine. About twenty minutes after his admission he past an amount of bright arterial blood equal to three pints. Pulse was weak and very rapd. Patient complained of soreness and fullness over right kidney, the latter being evident by palpation. The mucous surfaces and also the entire skin were pale and anemic. Intravenous injections of normal salt solution and hypodermic stimulation were at once employed, together with hot-air baths. Immediate operation was decided upon. The man was quickly prepared and a lumbar nephrectomy performed. The hemorrhage was very severe, and for a few moments the result lookt extremely doubtful. Normal salt solution and hypodermics were again resorted to, with good results. The doctor found the kidney torn about three-quarters thru, and in its removal the rupture was completed, the organ being removed in two pieces. Several ligatures were applied to the vessels, the wound cleansed and closed thruout two-thirds of its extent, the remaining third being packt with iodoform gauze. The left kidney assumed its double duty without trouble and the patient made an uninterrupted recovery. The after-treatment consisted of sweating, injections of normal salt solution and hypodermic stimulation, together with considerable quantities of drinking water. At the present time the man is again doing his work as formerly, and is in perfect physical condition. The kidney was somewhat larger than normal and quite friable.

That purulent pleurisy may result from an unoperated, suppurative appendicitis is pointed out by Lapeyre (Philadelphia Medical Journal), the infection occurring either thru the blood-vessels or, generally, by direct communication from contiguity. While the former is found with an infarct on either side, the latter will be upon the right side always, preceded and accompanied by subphrenic suppuration. In 13 cases of appendicitis collected from the literature, right-sided pleurisy was found post-mortem with subphrenic abscess, showing the extension from the appendix thru the diaphragm into the pleura. In three others perihepatic abscess was found with appendicitis, but separate from it. From these autopsies it is plain that suppuration from the appendix spreads up the parieto-colic zone to the liver and pleura. Clinically Lapeyre reports 16 cases of right-sided pleurisy with subphrenic abscess complicating appendicitis. He believes that the extension is not due to either the retroperitoneal cellular tissue or the parietal lymphatics, but to the uninterrupted peritoneum in the retrocolic sinus. This is limited above by the suspensory ligament of the liver; below by the inferior cecal ligament. Thus an abscess will form above or below the liver. Pleurisy will then follow by perforation of the diaphragm, or by the lymphatics transporting the microbes thru the diaphragm. There are first the ordinary symptoms of appendicitis, then great pain in the right hypochondrium, with dyspnea, stitch in the side, and cough. When the abscess is below the liver, there may be edema of the abdominal wall, enlargement of the subcutaneous veins, and, perhaps, fluctuation. If the abscess is above the liver, however, there is, as a rule, only markt induration of the right side of the abdomen. The physical signs simulate purulent pleurisy. The prognosis is grave; the diagnosis always difficult. Perihepatic abscess may be prevented by removing the appendix when the appendicitis first appears. The only treatment is immediate operation, with removal of the appendix and evacuation of the abscess.

In a recent paper by Senn, of Chicago, it is claimed (Journal of American Medical Association) that carcinoma is due to atypical proliferation of the epithelial cells from the matrix of embryonic cells of congenital or post-natal origin. The law of legitimate succession of cells holds true in the origin and growth of tumors, both benign and malignant, as well as in the production of normal and inflammatory tissue. Being primarily epithelial, carcinoma in the mesoblastic tissue is impossible except by displaced inclusions of epithelial tissue. The histology and histogenesis of carcinoma are against the parasitic origin of the disorder. The stroma of carcinoma consists of pre-existing connective tissue fibers and their descendants. Carcinomatous cells usually multiply by irregular atypical karyokinesis, and this pathologic segmentation is an important indication of malignancy and of considerable diagnostic value. The progressive extension of tumors to adjacent tissues and organs, regardless of their structure, is strong proof of carcinomatous character. Regional metastasis takes place exclusively thru the lymphatic channels and the pre-existing lymphatic structures take no active part in the origin and growth of secondary tumors. The general dissemination of carcinoma usually takes place by direct implication of veins in the primary or secondary tumors. The carcinomatous cells reach the venous circulation thru the formation of an intravenous tumor thrombosis or carcinomatous endophlebitis or thru perforation of the vein walls by carcinomatous cells. Retrograde intravenous extension is due to the transportation of minute emboli of carcinoma cells against the current surrounded by a mantle of blood corpuscles which move step by step on the intima. Retrograde extension thru lymphatics may take place in the same manner, but is more frequently the result of carcinomatous endolymphangitis. The increase of carcinoma is more apparent than real and heredity is a generally recognized predisposing cause. As a rule it occurs in elderly persons, but occasionally is met with in individuals under 25, and then is specially malignant. It seldom follows a single injury, but generally follows repeated or prolonged irritation. Among the predisposing causes must be enumerated racial, climatic, and topographical influences. Chronic inflammatory products, cicatrices, and benign epithelial tumors are favorable local conditions. The positive results of implantation and inoculation experiments have thus far failed in establishing the parasitic theory and a careful study of the experimental researches and the bacteriologic and histologic investigations do not warrant us at present in claiming a parasitic origin for carcinoma. The experience of centuries with medication has demonstrated that thus far carcinoma is not materially bettered in this way. Direct medication of carcinomatous tissue by parenchymatous injections has no influence, while the injection of sclerogenic substances into the surrounding connective tissue appears to restrain the local extension by impairing the blood supply. Local applications of any kind for ulcerative carcinoma can be only palliative at best. The actual cautery and chemical caustics have only a limited field of usefulness in open inoperable carcinoma and should never be used in treatment of closed carcinoma in place of the knife. The serum treatment has yielded only negative results. The early and radical operative treatment offers the only prospect for permanently eliminating the disease, which can be determined only after a lapse of ten years or more after operation. Radical operation should never be attempted unless local conditions and the general health are such as to warrant it. Admitting carcinoma to be the product of erratic, planless cell growth, not governed, by the influence of the regular normal tissue change, it appears logical to make experiments and observations to find the remedy which will destroy the tumor by causing early and steady degeneration of its parenchyma, or which possesses the property of converting embryonic into mature epithelial cells, thus converting a carcinoma into a benign epithelioma.

GYNECOLOGICAL NOTES.

An original operation: ventral fixation for anterior displacements of the uterus, is described in Virginia Medical Semi-Monthly, August 9, by Dr. Jacob Michaux, Professor of Obstetrics in University College of Medicine, Richmond. The abdomen is opened in the median line, and the fundus seized in the hand and carried backward and upward, so as to straighten the cervical canal. The uterus is then curetted (by an assistant), and carefully packt with gauze. The fundus is stitcht to the abdominal wall considerably above its normal position—thus correcting the anteflexion and straightening the cervical canal. A case is reported in which all other approved methods having failed this plan proved curative.

Dr. Paul F. Munde, of New York, states that mere pain in the coccyx, when unconnected with dislocation, fracture or disease of its periosteum, is no evidence of pelvic disease, but usually a sign of general neurasthenia, and almost invariably associated with pain or ache in the favorite locations of that distressing affection, viz., base of the sacrum, intrascapular, cervical, occipital, left parietal and supraorbital and left mammary regions.

The importance of masturbation in the field of gynecology is not fully appreciated by the average practitioner. He does not recognize the fact that a large percentage of the cases of neurasthenia which fails to yield to treatment may properly be ascribed to this cause; and that the evil remaining uncheckt cure is impossible. There are thousands of married women who masturbate to excess—masturbate because the husband does not satisfy their sexual desires (thru premature emission, etc.); and having learned its pleasures carry it to excess; and to eventual nervous breakdown. Dr. Wm. C. Krauss, in a recent article (Charlotte Medical Journal, August, 1901), warns against giving a favorable prognosis in cases of functional nervous disease with an underlying history of probable masturbation coupled with a neurotic family history. Cases giving no history of masturbation, which fail to respond to treatment after a sufficient interval, should be most rigidly interrogated, and in many cases the suspicion of masturbation will be verified. It is almost useless to try any form of treatment, he says, or to expect to obtain any definite results in the functional neuroses if this habit is not discovered and corrected. If, then, this habit is so widespread among the young; if it tends in suitable cases to undermine the physical and physical forces; if it renders its devotee almost impregnable to rational scientific treatment, is it not a practice which should be discouraged rather than encouraged, defeated rather than surfeited? His own opinion, he declares, may differ from others, but from his experience he would rather treat any other form of nervous disease than a case of masturbational neurosis.

To inveigh against "local treatment," save in acute inflammatory conditions, seems to be the order of the day. A strong article is that of Dr. L. Beahan, who says (Charlotte Medical Journal, August, 1901), that the most dangerous procedures are perhaps intra-uterine examinations, operations, and applications. The most objectionable instruments used in treating these diseases are dilator, sound, and curet. The sound should never be used! The curet is useful when the uterus has failed to expel part or the whole of the products of conception, or when later the uterus does not contract because of fungous granulations of the membrane of uterine cavity; but it should be used with great circumspection and after a careful eliminating diagnosis. Its use should rank with major operations and similar careful preparation should be made for its performance. Large, smooth, loop curets should be employed to remove placental debris. The employment of pessaries has been much abused. Electricity as usually applied seems futile. The principles of practice must recognize the causes involved in producing female diseases, such as constipation, the results of abnormal confinements, of repairs not made in season, and of sexual infections. Calomel and salines indirectly lessen pelvic engorgement. Hot-water douches in the recumbent posture, followed by soothing alkaline or stimulating astringent solutions of moderate strength, are useful, except in tubal and ovarian diseases, but if pain occurs when they are administered it is proof of harmfulness. Local treatments will seldom be required. The use of tampons of cotton or wool with glycerin are valuable, but should be used only when the patient is confined in bed. Great care should be used in this procedure. A torn cervix should be repaired by the Emmet or other method. Perineal laceration should be repaired by the American or Emmet method of elevating the perineum and anchoring well up. The close study of many female diseases will limit the range of usefulness of "treatments," but enlarge the sphere of surgical relief and improve the care of remote and general disturbances.

In the arrest of uterine hemorrhage, other than that incident to the puerperal state, says New York Medical Journal, the measures to be adopted are local and general. Local measures include (a) irrigation with very hot water, and (b) tamponing. The irrigations should be given to the patient lying across the bed in the dorsal decubitus, with the nates slightly projecting over the mattress, using six, eight or even ten quarts of water at 113 to 122 degrees Fahrenheit. It may be necessary to repeat the injections twice or three times daily and for several days in succession. These irrigations contract the small vessels. They are specially suitable where the tissues are friable. They always suffice to modify the flow so as to permit of tamponing. For this purpose a speculum is essential, otherwise the first tampons will wipe away the mucus, and by drying the vagina render it difficult and painful to pass the others. Then haste will ensue and the work be badly done. Charpie makes the best tampon, but it should have been baked in an oven, if no sterilizer is at hand, until it begins to redden; sterile gauze may be used instead. When the tampons are ready and a vaginal injection has been given, the speculum should be past, and the tampons inserted, first in the cul-de-sac, then progressively in the vagina, pressing them in gently. The patient must be sedulously watcht and the tampon should not be left in place for more than forty-eight hours at most; for it must be borne in mind that tamponing has its inconveniences. It facilitates ulceration of inflamed or cancerous tissues; the blood may accumulate above the tampon and lead to internal hemorrhage; the tampons rapidly become septic; moreover, it almost always leads to urinary and fecal retention. A third local measure is the application of ice or cold water to the abdomen. This measure is indicated as an auxiliary in certain cases of internal hemorrhages. Cases accompanied by high tension of pulse; arterial pulsations in the vagina, and sensations of ardor, heat or erethism in the pelvis, indicate sthenic inflammation and call for the employment of cold as a preferential method. If the hemorrhage persists in spite of treatment, one should not have recourse to Emmet's procedure, which consists in placing a temporary suture in the cervix, at the risk of having a hemotometra or an intraperitoneal hemorrhage; nor should the ligature of the uterine arteries, lauded by Franklin Martin, be practist. These measures constitute a veritable surgical intervention, and it would be much better at once to perform a radical operation and treat the source of the hemorrhage. What ought to be done usually, is dilatation of the cervix either by sponge tents, if there is no urgency, or immediately by incision of the cervix, without the use of Hegar's bougies, which are specially obnoxious here. The incision has the further advantage of allowing one to extirpate a fibrous polypus, if presenting. It also permits one to employ an intrauterine tampon or hemostatics to the source of the hemorrhage, such, for instance, as

Antipyrine 5
Distilled water 10

which will often succeed where tamponing and vaginal injections have failed. Of general measures: first of all the horizontal decubitus with elevation of the pelvis is to be insisted on, together with absolute quietude of body and mind. The patient must keep her bed for at least 48 hours after the complete cessation of the hemorrhage. Among medicinal remedies may be mentioned the following: Opium as in these forms—

Wine of opium 1
Decoction of marshmallow..... 250
M. For use as a vaginal injection; or suppositories of
Extract of opium 0.06
Cacao butter 4.00

Ergot of rye is recommended in doses of 22 grains of the dry powder divided into two or three packets and taken at intervals during the day; or ergotinine by hypodermic injection. Where there is arterial hyperdistention with vascular erethism the following may be prescribed:

Powdered digitalis leaves 0.1
Water for infusion 1000.0

M. To be taken in the twenty-four hours. Hydrastis canadensis, from 20 to 30 drops of the tincture during the day, and cannabis indica, 30 drops daily of the fluid extract, appear to exercise an influence on the circulation of the uterine mucosa. Finally in cases where passive hemorrhages, induced by hepatic congestion and constipation, are suspected, the digestive tract must be attended to and purgatives administered.

The treatment of acute inflammation of the uterus must vary —according to the cause.